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TM 5-6675-241-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL (INCLUDING REPAIR PARTS)

STEREOMETER, PHOTOGRAMMETRIC: STEREOCOMPARAGRAPH

Q-TO 25-MM GRADUATIONS READING DIRECTLY TO 1/100 MM (MILITARY DESIGN) FSN 6675-240-6602

This copy is a reprint which includes curre
pages from Changes 1 and 2.

HEADQUARTERS, DEPARTMENT O

JANUARY 1966

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CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *2 June 1969*

Organizational, DS, GS, and Depot Maintenance Manual
(Including Repair Parts)

STEREOMETER, PHOTOGRAMMETRIC:
STEREOCOMPARAGRAPH Q TO 25-MM
GRADUATIONS READING DIRECTLY TO 1/100 MM
(MILITARY DESIGN)
FSN 6675-240-6602

TM 5-6675-241-15, 13 January 1966, is changed as follows:

Page 3. Paragraph 1 is superseded as follows:

1. Scope

a. These instructions are published for the use of the personnel to whom the military design stereometer is issued. Chapter 1 through 3 provide information on the operation, daily preventive maintenance services, and organizational maintenance of the equipment, accessories, components, and attachments. Chapters 4 and 5 cover instructions for demolition, shipment, and limited storage. Chapter 6 provides information for direct and general support and depot maintenance. This manual also provides description of the main units and their functions in relationship to other components.

b. Numbers in parentheses following nomenclature callouts on illustrations indicate quantity; numbers preceding nomenclature callouts indicate preferred maintenance sequence.

c. Report of all equipment improvement recommendations as prescribed by TM 38-750.

d. Reporting of errors, omissions and recommendations for improving this publications by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded directly to the Commanding General, U. S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Blvd., St. Louis, Mo. 63120.

Page 43. Appendix II, is superseded as follows:

APPENDIX II
BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. Scope

This appendix lists items which accompany the stereocomparagraph or are required for installation, operation, or operator's maintenance.

2. General

This Basic Issue Items List is divided into the following sections:

a. Basic Issue Items — Section II. A list of items which accompany the stereocomparagraph and are required by the operator/crew for installation, operation, or maintenance.

b. Maintenance and Operating Supplies — Section III. Not Applicable.

3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items, Section II.

a. Source, Maintenance, and Recoverability Codes (SMR), Column (1).

(1) Source code, indicates the selection status and source for the listed item. Source code is:

Code	Explanation
P	Repair parts which are stocked in or supplied from the GSA/DSA or Army supply system and authorized for use at indicated maintenance categories.

(2) Maintenance code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level code is:

Code	Explanation
C	Operator/crew

(3) Recoverability code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable.

b. Federal Stock Number, Column (2). This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description, Column (3). This column indicates the Federal item name and any additional description of the item required.

d. Unit of Measure (U/M), Column (4). A 2-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Incorporated in Unit, Column (5). This column indicates the quantity of the item used in the assembly group.

f. Quantity Furnished With Equipment, Column (6). This column indicates the quantity of an item furnished with the equipment.

g. Illustration, Column (7). This column is Not Applicable.

Section II. BASIC ISSUE ITEMS

(1) SMR code	(2) Federal stock number	(3) Description: Ref No. & mfr code / Usable on code	(4) Unit of meas	(5) Qty inc in unit	(6) Qty furn with equip	(7) Illustration: (A) Figure	(7) Illustration: (B) Item No.
		BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED					
PC		DA TECHNICAL MANUAL TM 5-6675-241-15	EA		1		
PC	6240-143-7433	LAMP, INCANDESCENT	EA	2	2		

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-25, Sec I (qty rqr Block #174, Organizational maintenance requirements for Surveying Equipment.

TECHNICAL MANUAL
No. 5-6675-241-15

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D. C., *13 January 1966*

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL

(INCLUDING REPAIR PARTS)

STEREOMETER, PHOTOGRAMMETRIC: STEREOCOMPARAGRAPH; 0- TO 25-MM GRADUATIONS, READING DIRECTLY TO 1/100 MM (MILITARY DESIGN) FSN 6675-240-6602

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. These instructions are published for the use of the personnel to whom the military design stereometer is issued. Chapters 1 through 3 provide information on the operation, daily preventive maintenance services, and organizational maintenance of the equipment, accessories, components, and attachments. Chapters 4 and 5 cover instructions for demolition, shipment, and limited storage. Chapter 6 provides information for direct and general support and depot maintenance. This manual also provides description of the main units and their functions in relationship to other components.

b. Appendix I contains a list of publications applicable to this manual. Appendix II contains the list of basic issue items and maintenance and operating supplies authorized for the initial operation. Appendix III contains the maintenance allocation chart. The organizational, direct and general support and depot maintenance repair parts and special tool lists are listed in appendix IV.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate the preferred maintenance sequence.

d. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting these imrpovements. This form will be completed using pencil, pen, or typewriter and forwarded direct to Commanding General, U.S. Army Mobility Equipment Center, ATTN: SMOME-MPT, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

e. Report all equipment improvement recommendations as prescribed by TM 38–750.

2. Record and Report Forms

For record and report forms applicable to the operator and organizational maintenance, refer to TM 38–750.

Note. Applicable forms, excluding Standard Form 46 which is carried by the operator, will be kept in a canvas bag carried with the equipment.

Section II. DESCRIPTION AND DATA

3. Description

a. General.

(1) The stereocomparagraph (figs. 1 and 2) is an instrument for examining stereo pairs of aerial photographs, measuring elevations, and drawing topographical details, including contour lines, directly from the photographs. It normally is used in connection with a drafting machine or other device allowing the entire device to be moved freely in two dimensions but without rotation. The instrument consists essentially of a small reflecting-type stereoscope, a measuring system and a drawing attachment.

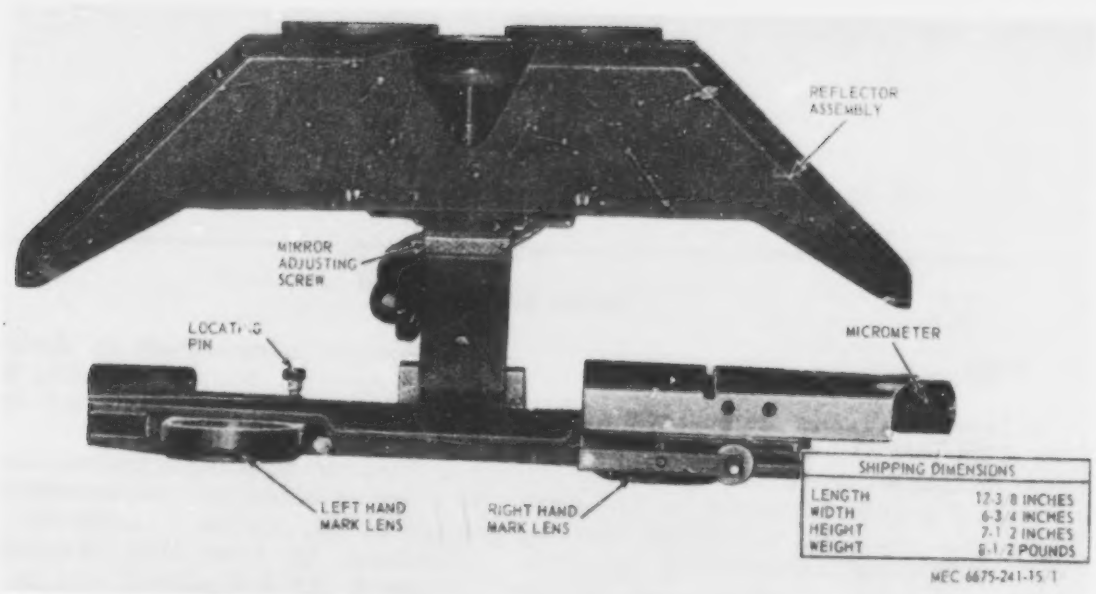


Figure 1. Stereocomparagraph, front view, with shipping dimensions.

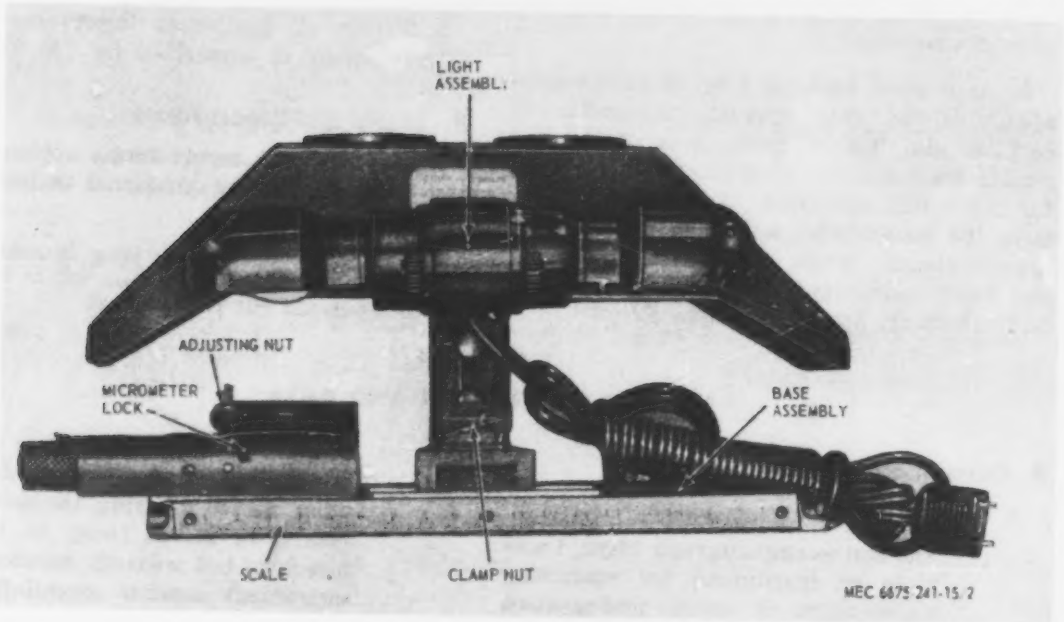


Figure 2. Stereocomparagraph, rear view.

(2) When a properly adjusted pair of photographs is examined through the comparagraph the terrain appears in relief, or as a plastic model with a "floating mark" near the center. This mark appears to change in altitude as it is adjusted by means of a micrometer head (fig. 1), and can be brought into apparent contact with the terrain. The altitude of the point of contact is then determined by the reading of the micrometer head in conjunction with known data regarding the photographic pair.

(3) The instrument normally is used with aerial photographs taken vertically, or oblique photographs which have been rectified to the vertical. It primarily is designed for pictures of any width and up to 9 inches length in the direction of flight with the usual 60 percent overlap, but may be used with pictures of other dimensions and degrees of overlap.

b. Stereoscope.

(1) The stereoscope consists of a pair of magnifying lenses and two mirror pairs. The inside mirrors can be moved angularly by rotating a knurled knob under the hood, to adjust for easy fusion of the photographic images.

(2) The arrangement allows for simultaneous observation of the fused photographs and of the two measuring marks M and M, fused into a floating mark at a virtual or apparent image plane somewhat beneath the plane of the table, (fig. 3). The stereoscopic base length, which is normal separation of the measuring marks, is about 15 centimeters.

c. Measuring System.

(1) The measuring marks M_1 and M_2 are dots located in the centers of the two zero-power meniscus lenses by which they are maintained in close contact with the photographs. The lens supports are hinged, so that they may temporarily be tilted up to inspect portions of the photographs which lie under the lens mounts.

(2) The separation of the marks is varied by means of the micrometer head acting on the right-hand lens holder. The reading of the micrometer indicates, in millimeters, the amount of motion from a mean position. A coarse adjustment is provided in the left-hand mark which may be moved in 5-millimeter increments to a total of 25 millimeters. This is done by removing the locating pin, moving the lens the required amount, and installing the pin in the corresponding locating hole. If it is necessary to make this change during operation, the amount of the movement must be added or subtracted from the micrometer readings.

(3) The right-hand lens may also be moved in a direction perpendicular to the micrometer motion by means of a knurled nut (fig. 2). This movement, known as the "by" motion, is limited to 1/4 inch each side of a central or normal position indicated by the center line. The purpose of this motion is to correct slight apparent separations of the marks in the vertical or "y" direction due to tilt and other small distortions in the photographic pairs.

(4) The micrometer may be read by direct observation, or under the magnification of the right-hand eye lens of the stereoscope. A micrometer lock (fig. 2) is used when it is desired to keep the micrometer head in a fixed position, as when drawing contours.

(5) A millimeter scale attached to the rear of the comparagraph base can be used in measuring the absolute separations of corresponding points on the stereo pairs.

d. Drawing Attachment.

(1) A special pencil is mounted at the end of a drawing arm which is rigidly connected to the base of the instrument. The pencil chuck is located on a short arm which attaches

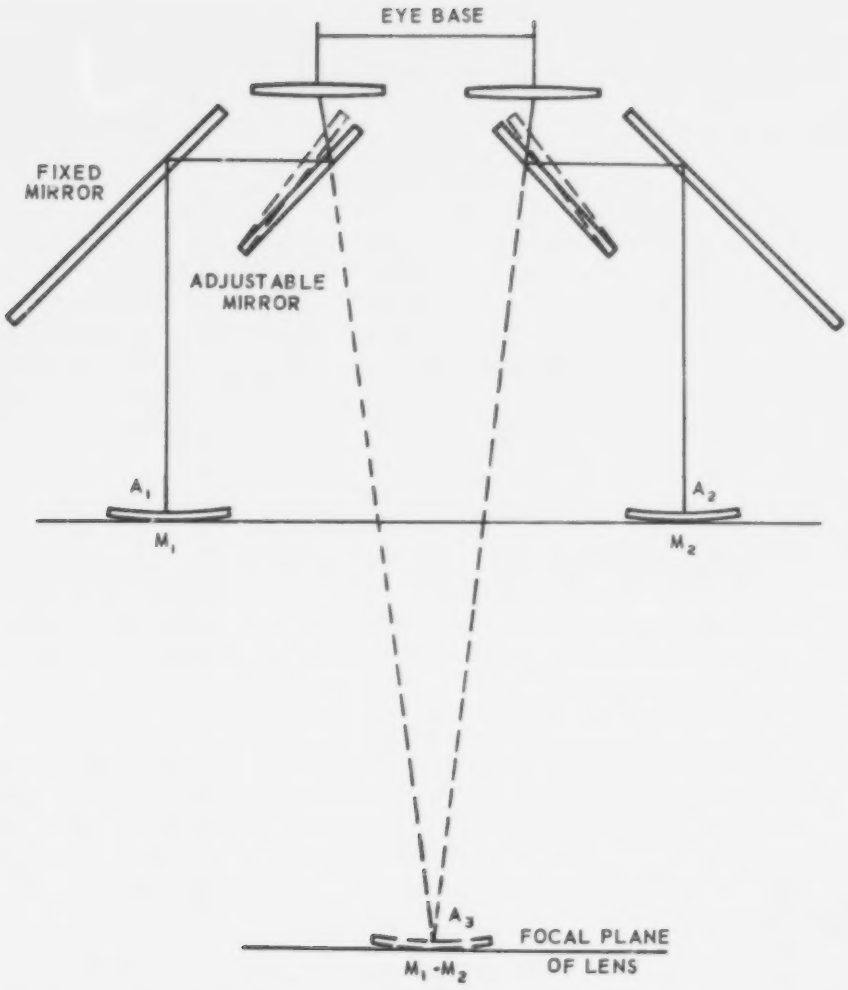


Figure 3. Optics of the stereocomparagraph.

to the main arm by means of a knurled screw. The pencil arm is supported by a ball-pointed rest which rides on the paper surface and maintains the pencil chuck at the correct height. An extension, increasing the length of the drawing arm from 12 to 18 inches, is provided to fit between the main arm and the pencil arm if desired. This permits greater freedom in placing the drawing medium with respect to the photographs, and also permits the use of larger prints.

(2) The special pencils provided with the instrument are clamped in the chuck

at the height which provides the best spring pressure of the lead against the paper, or they may be held away from the paper to permit scanning the photographs without drawing, by lifting the knurled knob at the top of the holder and turning slightly so that the guide screw rests on the top of the shell. From the raised position points may be replaced by pressing down on the stem of the holder, the pencil being returned by spring pressure.

(3) The pencil leads should be kept sharpened to an exactly centered point, to prevent displacement of the lines due to resharpening or changing the pencils.

4. Identification and Tabulated Data

a. Identification. There are no identification plates on the stereocomparagraph.

b. Tabulated Data.

(1) *General.*

Manufacturer	Gordon Enterprises
Model	121GE
Contract No.	DA-11-184-AMC-499 (T)

(2) *Dimensions and weight.*

Length	12-3/8 in. (inch)
Width	6-3/4 in.
Height	7-1/2 in.
Weight	8-1/2 lb (pound)

5. Difference in Models

This manual covers only the Gordon Enterprises Stereocomparagraph, Model 121GE. No known unit differences exist for the model covered by this manual.

CHAPTER 2

INSTALLATION AND OPERATION INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. Unpacking the Equipment

a. Remove the tape securing the paper carton.

b. Remove the paper carton.

c. Unlatch the carrying case and remove the stereocomparagraph.

7. Inspecting and Servicing Equipment

a. Inspect the entire unit for loose or missing mounting hardware and any damage which may have been incurred during shipment.

b. Inspect the lenses for scratches and other damage.

c. Inspect the lamps for damage.

d. Inspect the accessories to make sure all items are with the equipment and in serviceable condition.

8. Installation of Separately Packed Components

Refer to figure 4 for the separately packed components.

9. Installation or Setting-Up Instructions

a. Install the support assembly to the base assembly.

b. Install the light assembly to the support assembly.

c. Install the drawing attachment to the instrument base.

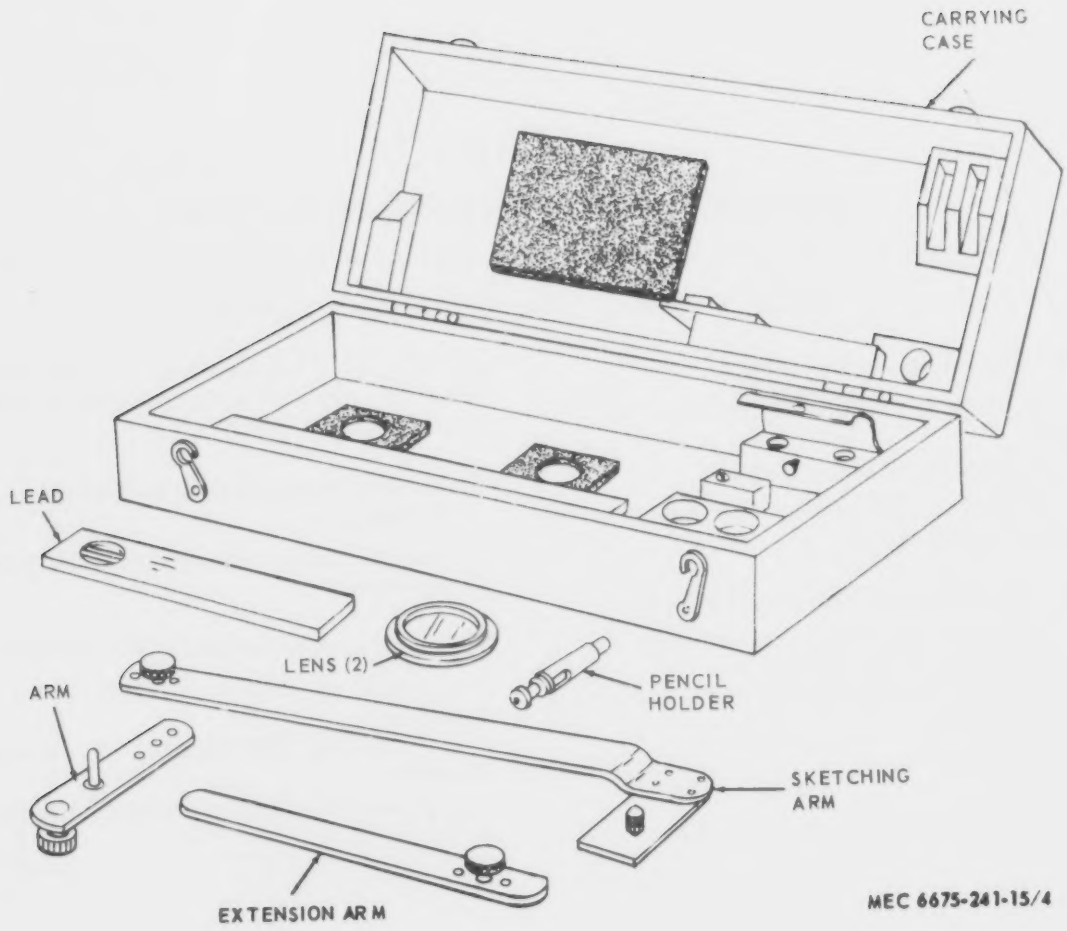


Figure 4. Separately packed components.

Section II. CONTROLS AND INSTRUMENTS

10. General

This section describes, locates, illustrates, and furnishes the operator sufficient information about the various controls for proper operation of the stereocomparagraph.

11. Control and Instruments

Refer to figure 5 for the purpose and location of all controls and instruments.

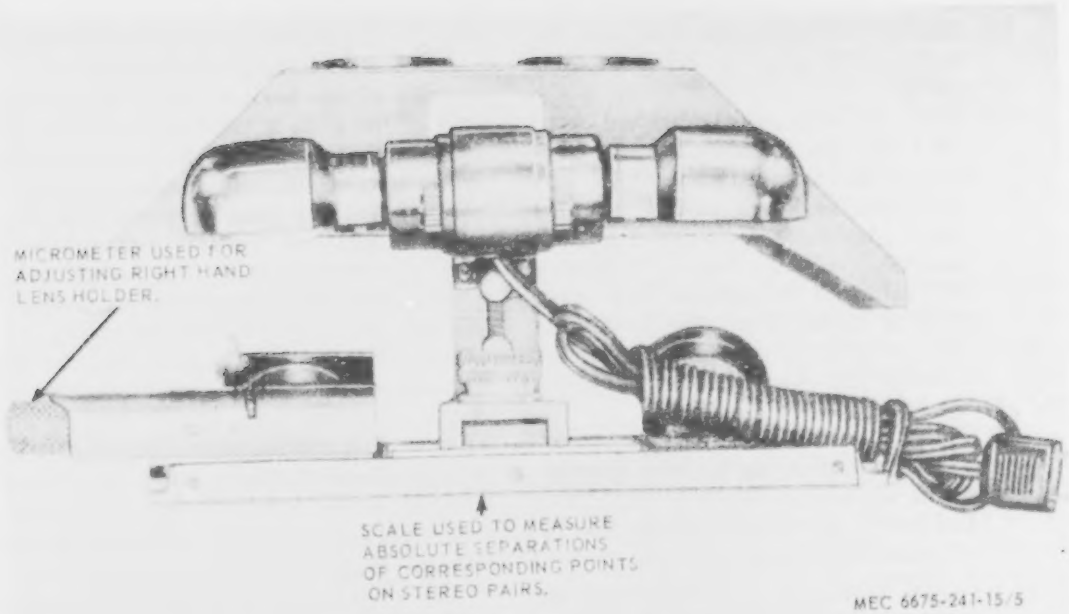

MICROMETER USED FOR ADJUSTING RIGHT HAND LENS HOLDER.
SCALE USED TO MEASURE ABSOLUTE SEPARATIONS OF CORRESPONDING POINTS ON STEREO PAIRS.
MEC 6675-241-15/5

Figure 5. Controls and instruments.

Section III. OPERATION OF EQUIPMENT

12. General

a. The instructions in this section are published for the information and guidance of the personnel responsible for the operation of the stereocomparagraph.

b. The operator must know how to perform every operation of which the stereocomparagraph is capable. This section gives instructions on the operation of the unit. Since nearly every job presents a different problem the operator may have to vary given procedures to fit the individual job.

13. Stereocomparagraph Operation

a. Marking the Photographs.

(1) *Center points.* Prick the center of each photograph. The centers of vertical photographs may be located by means of the collimating marks registered on the prints. A single small pin prick is sufficient. When the centers have been pricked, the photographs should be scanned and the positions of the center points of adjacent photographs should be pricked where they appear on successive photographs. This establishes the direction of flight and the stereoscopic base. Inclose the points in broken crosses for ready reidentification.

(2) *Control points.* Prick the exact position of all control points and circumscribe them with a fine blue circle of about 1/4-inch diameter if there is any danger of their exact position being lost. The name or other distinguishing mark of the points and the elevation should be recorded beside the control points.

b. Deliberate Method of Adjustment. When the photographs have been marked as outlined in *a* above, they may be laid down

and the stereocomparagraph adjusted to them, as follows:

(1) Attach the stereocomparagraph to the drafting machine, or other suitable guide.

(2) Move the instrument forward until the index marks are off the photographs and over a clean, white surface. Set the "by" motion of the right index mark in its center or midposition. Adjust the stereoscope knob and the micrometer until the floating marks fuse and remain as one, without eye strain, with the micrometer near its midpoint on the scale.

(3) Place the left print of the stereoscopic pair face up in any conventional drawing position on the drawing board or table on which the instrument is mounted.

Note. If there is a possibility that the setup will be disturbed prior to the completion of the work, the prints should be placed on a sheet of drawing paper in order that both photographs may be taken up without disturbing their relative positions.

(4) Orient the left photograph by swinging it until the stereoscopic base line is parallel to the edge of the scale at the rear of the stereocomparagraph. This must be done exactly. This photograph may then be fastened to the table with tape.

(5) Place the stereocomparagraph over the left photograph so that the left floating mark falls on the center point of the left photograph. Place the right photograph of the pair under the stereocomparagraph and orient it with respect to the left photograph in such a way that the position of the point on the right photograph corresponding to the center point of the left photograph is directly under the right floating mark, without changing the setting of the micrometer.

(6) Observe through the stereoscope and complete the stereoscopic adjustment of the center point of the left photograph, causing the fused image of the floating marks to fall exactly on the surface of the stereoscopic model without apparent parallax.

(7) While holding the right photograph in such a manner as not to disturb the position of the left center point, move the stereocomparagraph until the left floating mark falls on the point of the left photograph which corresponds to the center point of the right photograph. Swing the right photograph until the right floating mark falls on the stereoscopic base line, and by means of the micrometer, bring the instrument into stereoscopic adjustment with the floating mark resting on this point.

(8) Readjust the left center point.

(9) Readjust on the right center point.

(10) Make similar adjustments near the four corners of the stereoscopic model, and if possible, on at least three points known in elevation. If the photographs are without tip or tilt, and are of the same scale, a perfect adjustment will be obtained without resort to the "by" motion; but if this condition does not hold, the residual vertical parallax may be removed by means of the "by" motion. In adjusting on control points, set the micrometer to correspond to the computed parallax value of the known elevation of the points before the adjustment is begun.

(11) When the parallax has been removed, completing the adjustment, both prints may be securely taped to the drawing table or mounting sheet.

(12) By choosing points along the border of the area of overlap and marking them as outlined above, the cartography may be extended through successive photographs for the compilation of maps of large areas.

c. Alternate Rapid Method of Adjustment.

(1) Mark the photographs as outlined in *a* above. Fuse the index marks into a single floating mark without eye

strain with the micrometer near the center of its scale. Measure the distance between the index marks.

Note. For this example, the distance between the index marks will be 6.27 inches.

(2) Temporarily fasten the left photograph to a sheet of drawing paper by means of a pin or pricker through its center point. Place the right photograph a distance to the right of 6.27 inches between the pricked center point of the left photograph and the corresponding position of this point on the right photograph as shown by the small pin in figure 6.

(3) Fasten the right photograph to the drawing paper by means of a pricker through its center. Place a straightedge against these two prickers and swing both photographs until their stereoscopic base line is parallel to the edge of the ruler. Fasten the photographs to the mounting sheet with tape.

(4) Place the stereocomparagraph over the mounted sheets in the drawing position and swing them as a whole until the stereoscopic base of the instrument is parallel to the established base of the photographs and secure them to the drawing table. Drawing may now be started. Use the "by" motion of the right index mark to remove residual vertical parallax.

d. Operation.

(1) The operation of the stereocomparagraph is essentially a process of determining differences of elevation as represented by differences in parallax, which are measured by the micrometer.

(2) Such measurement is obtained by bringing the fused image of the two index marks into contact with the stereoscopic model, and noting the reading of the micrometer for each point measured. The difference in feet corresponding to the difference in micrometer readings for two or more points may be obtained from table 1.

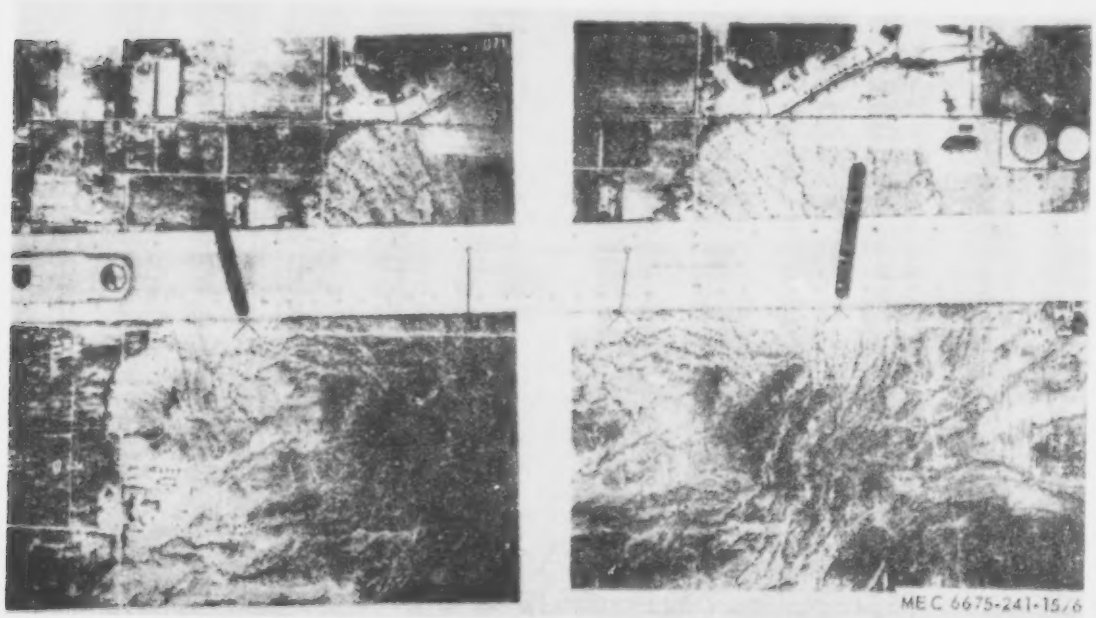


Figure 6. Orienting instructions for alternate rapid method adjustment.

TABLE I

TABLES OF PARALLAX

for

$$\Delta p = \frac{B_m \, \Delta h}{H - h}$$

between the limits of $(H - h)$ = 25,000 ft. to $(H - h)$ = 10,000 ft., when B_m = 100 mm. and Δh = 20 ft., and between the limits of $(H - h)$ = 10,000 ft. to $(H - h)$ = 5000 ft., when B_m = 100 mm. and Δh = 10 ft.

$(H-h)$ ft.	Δp mm.	$\Sigma \Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma \Delta p$ mm.
25000	0	0	24100	0.083	3.666
24980	0.080	0.080	24080	0.083	3.749
60	0.080	0.160	60	0.083	3.832
40	0.080	0.240	40	0.083	3.916
20	0.080	0.321	20	0.083	3.999
24900	0.080	0.401	24000	0.083	4.082
24880	0.080	0.481	23980	0.083	4.166
60	0.080	0.562	60	0.083	4.249
40	0.080	0.642	40	0.084	4.333
20	0.081	0.723	20	0.084	4.416
24800	0.081	0.803	23900	0.084	4.500
24780	0.081	0.884	23880	0.084	4.583
60	0.081	0.965	60	0.084	4.667
40	0.081	1.045	40	0.084	4.751
20	0.081	1.126	20	0.084	4.835
24700	0.081	1.207	23800	0.084	4.919
24680	0.081	1.288	23780	0.084	5.003
60	0.081	1.369	60	0.084	5.087
40	0.081	1.450	40	0.084	5.171
20	0.081	1.532	20	0.084	5.256
24600	0.081	1.613	23700	0.084	5.340
24580	0.081	1.694	23680	0.084	5.425
60	0.081	1.776	60	0.084	5.509
40	0.081	1.857	40	0.085	5.594
20	0.082	1.939	20	0.085	5.678
24500	0.082	2.020	23600	0.085	5.763
24480	0.082	2.102	23580	0.085	5.848
60	0.082	2.184	60	0.085	5.933
40	0.082	2.265	40	0.085	6.017
20	0.082	2.347	20	0 085	6.102
24400	0.082	2.429	23500	0.085	6.188
24380	0.082	2.511	23480	0.085	6.273
60	0.082	2.593	60	0.085	6.358
40	0.082	2.675	40	0.085	6.443
20	0.082	2.758	20	0.085	6.529
24300	0.082	2.840	23400	0.085	6.614
24280	0.082	2.922	23380	0.086	6.700
60	0.082	3.005	60	0.086	6.785
40	0.082	3.087	40	0.086	6.870
20	0.083	3.170	20	0.086	6.956
24200	0.083	3.252	23300	0.086	7.042
24180	0.083	3.335	23280	0.086	7.128
60	0.083	3.418	60	0.086	7.214
40	0.083	3.501	40	0.086	7.300
20	0.083	3.583	20	0.086	7.386

$(H-h)$ ft.	Δp mm.	$\Sigma \Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma \Delta p$ mm.
23200	0.086	7.472	22300	0.090	11.429
23180	0.086	7.559	22280	0.090	11.519
60	0.086	7.645	60	0.090	11.608
40	0.086	7.731	40	0.090	11.698
20	0.086	7.818	20	0.090	11.788
23100	0.087	7.904	22200	0.090	11.878
23080	0.087	7.991	22180	0.090	11.968
60	0.087	8.078	60	0.090	12.059
40	0.087	8.164	40	0.090	12.149
20	0.087	8.251	20	0.090	12.239
23000	0.087	8.338	22100	0.090	12.330
22980	0.087	8.425	22080	0.091	12.420
60	0.087	8.512	60	0.091	12.511
40	0.087	8.599	40	0.091	12.602
20	0.087	8.687	20	0.091	12.692
22900	0.087	8.774	22000	0.091	12.783
22880	0.087	8.861	21980	0.091	12.874
60	0.087	8.949	60	0.091	12.965
40	0.088	9.036	40	0.091	13.056
20	0.088	9.124	20	0.091	13.148
22800	0.088	9.212	21900	0.091	13.239
22780	0.088	9.299	21880	0.091	13.330
60	0.088	0.387	60	0.091	13.422
40	0.088	9.475	40	0.092	13.513
20	0.088	9.563	20	0.092	13.605
22700	0.088	9.651	21800	0.092	13.697
22680	0.088	9.739	21780	0.092	13.788
60	0.088	9.827	60	0.092	13.880
40	0.088	9.916	40	0.092	13.972
20	0.088	10.004	20	0.092	14.064
22600	0.088	10.093	21700	0.092	14.156
22580	0.089	10.181	21680	0.092	14.249
60	0.089	10.270	60	0.092	14.341
40	0.089	10.358	40	0.092	14.433
20	0.089	10.447	20	0.092	14.526
22500	0.089	10.536	21600	0.093	14.618
22480	0.089	10.625	21580	0.093	14.711
60	0.089	10.714	60	0.093	14.804
40	0.089	10.803	40	0.093	14.896
20	0.089	10.892	20	0.093	14.989
22400	0.089	10.981	21500	0.093	15.082
22380	0.089	11.071	21480	0.093	15.175
60	0.089	11.160	60	0.093	15.268
40	0.089	11.250	40	0.093	15.362
20	0.090	11.339	20	0.093	15.455

TABLES OF PARALLAX

$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.
21400	0.093	15.548	20300	0.098	20.825
21380	0.094	15.642	20280	0.099	20.924
60	0.094	15.736	60	0.099	21.023
40	0.094	15.829	40	0.099	21.121
20	0.094	15.923	20	0.099	21.220
21300	0.094	16.017	20200	0.099	21.319
21280	0.094	16.111	20180	0.099	21.418
60	0.094	16.205	60	0.099	21.517
40	0.094	16.299	40	0.099	21.617
20	0.094	16.393	20	0.099	21.716
21200	0.094	16.487	20100	0.099	21.815
21180	0.094	16.582	20080	0.100	21.915
60	0.094	16.676	60	0.100	22.015
40	0.095	16.771	40	0.100	22.114
20	0.095	16.865	20	0.100	22.214
21100	0.095	16.960	20000	0.100	22.314
21080	0.095	17.055	19980	0.100	22.414
60	0.095	17.150	60	0.100	22.514
40	0.095	17.245	40	0.100	22.615
20	0.095	17.340	20	0.100	22.715
21000	0.095	17.435	19900	0.100	22.815
20980	0.095	17.531	19880	0.101	22.916
60	0.095	17.626	60	0.101	23.017
40	0.095	17.721	40	0.101	23.117
20	0.096	17.817	20	0.101	23.218
20900	0.096	17.913	19800	0.101	23.319
20880	0.096	18.008	19780	0.101	23.420
60	0.096	18.104	60	0.101	23.521
40	0.096	18.200	40	0.101	23.623
20	0.096	18.296	20	0.101	23.724
20800	0.096	18.392	19700	0.101	23.826
20780	0.096	18.488	19680	0.102	23.927
60	0.096	18.585	60	0.102	24.029
40	0.096	18.681	40	0.102	24.131
20	0.096	18.778	20	0.102	24.232
20700	0.097	18.874	19600	0.102	24.334
20680	0.097	18.971	19580	0.102	24.437
60	0.097	19.065	60	0.102	24.539
40	0.097	19.164	40	0.102	24.641
20	0.097	19.261	20	0.102	24.743
20600	0.097	19.358	19500	0.103	24.846
20580	0.097	19.456	19480	0.103	24.949
60	0.097	19.553	60	0.103	25.051
40	0.097	19.650	40	0.103	25.154
20	0.097	19.747	20	0.103	25.257
20500	0.098	19.845	19400	0.103	25.360
20480	0.098	19.943	19380	0.103	25.463
60	0.098	20.040	60	0.103	25.567
40	0.098	20.138	40	0.103	25.670
20	0.098	20.236	20	0.103	25.773
20400	0.098	20.334	19300	0.104	25.877
20380	0.098	20.432	19280	0.104	25.980
60	0.098	20.530	60	0.104	26.084
40	0.098	20.629	40	0.104	26.188
20	0.098	20.727	20	0.104	26.292

$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.
19200	0.104	26.396	18100	0.110	32.296
19180	0.104	26.501	18080	0.111	32.407
60	0.104	26.605	60	0.111	32.517
40	0.104	26.709	40	0.111	32.628
20	0.105	26.814	20	0.111	32.739
19100	0.105	26.919	18000	0.111	32.850
19080	0.105	27.023	17980	0.111	32.961
60	0.105	27.128	60	0.111	33.073
40	0.105	27.233	40	0.111	33.184
20	0.105	27.338	20	0.112	33.296
19000	0.105	27.444	17900	0.112	33.407
18980	0.105	27.549	17880	0.112	33.519
60	0.105	27.654	60	0.112	33.631
40	0.106	27.760	40	0.112	33.743
20	0.106	27.865	20	0.112	33.855
18900	0.106	27.971	17800	0.112	33.968
18880	0.106	28.077	17780	0.112	34.080
60	0.106	28.183	60	0.113	34.193
40	0.106	28.289	40	0.113	34.305
20	0.106	28.395	20	0.113	34.418
18800	0.106	28.502	17700	0.113	34.531
18780	0.106	28.608	17680	0.113	34.644
60	0.107	28.715	60	0.113	34.757
40	0.107	28.821	40	0.113	34.871
20	0.107	28.928	20	0.113	34.984
18700	0.107	29.035	17600	0.114	35.098
18680	0.107	29.142	17580	0.114	35.211
60	0.107	29.249	60	0.114	35.325
40	0.107	29.356	40	0.114	35.439
20	0.107	29.464	20	0.114	35.553
18600	0.107	29.571	17500	0.114	35.667
18580	0.108	29.679	17480	0.114	35.782
60	0.108	29.787	60	0.114	35.896
40	0.108	29.894	40	0.115	36.011
20	0.108	30.002	20	0.115	36.126
18500	0.108	30.110	17400	0.115	36.240
18480	0.108	30.219	17380	0.115	36.355
60	0.108	30.327	60	0.115	36.471
40	0.108	30.435	40	0.115	36.586
20	0.109	30.544	20	0.115	36.701
18400	0.109	30.652	17300	0.116	36.817
18380	0.109	30.761	17280	0.116	36.932
60	0.109	30.870	60	0.116	37.048
40	0.109	30.979	40	0.116	37.164
20	0.109	31.088	20	0.116	37.280
18300	0.109	31.197	17200	0.116	37.396
18280	0.109	31.307	17180	0.116	37.513
60	0.109	31.416	60	0.116	37.629
40	0.110	31.526	40	0.117	37.746
20	0.110	31.635	20	0.117	37.863
18200	0.110	31.745	17100	0.117	37.980
18180	0.110	31.855	17080	0.117	38.097
60	0.110	31.965	60	0.117	38.214
40	0.110	32.075	40	0.117	38.331
20	0.110	32.186	20	0.117	38.448

TABLES OF PARALLAX

$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.
17000	0.118	38.566	15900	0.126	45.255	14800	0.135	52.425	13700	0.146	60.148
16980	0.118	38.684	15880	0.126	45.381	14780	0.135	52.560	13680	0.146	60.294
60	0.118	38.802	60	0.126	45.507	60	0.135	52.695	60	0.146	60.440
40	0.118	38.920	40	0.126	45.633	40	0.136	52.831	40	0.147	60.587
20	0.118	39.038	20	0.126	45.768	20	0.136	52.967	20	0.147	60.733
16900	0.118	39.156	15800	0.126	45.886	14700	0.136	53.103	13600	0.147	60.880
16880	0.118	39.274	15780	0.127	46.013	14680	0.136	53.239	13580	0.147	61.027
60	0.119	39.393	60	0.127	46.140	60	0.136	53.375	60	0.147	61.175
40	0.119	39.512	40	0.127	46.267	40	0.137	53.512	40	0.148	61.322
20	0.119	39.631	20	0.127	46.394	20	0.137	53.648	20	0.148	61.470
16800	0.119	39.750	15700	0.127	46.521	14600	0.137	53.785	13500	0.148	61.618
16780	0.119	39.869	15680	0.127	46.649	14580	0.137	53.922	13480	0.148	61.767
60	0.119	39.988	60	0.128	46.776	60	0.137	54.059	60	0.148	61.915
40	0.119	40.107	40	0.128	46.904	40	0.137	54.197	40	0.149	62.064
20	0.120	40.227	20	0.128	47.032	20	0.138	54.335	20	0.149	62.213
16700	0.120	40.347	15600	0.128	47.160	14500	0.138	54.472	13400	0.149	62.362
16680	0.120	40.466	15580	0.128	47.288	14480	0.138	54.610	13380	0.149	62.511
60	0.120	40.586	60	0.128	47.417	60	0.138	54.749	60	0.150	62.661
40	0.120	40.706	40	0.129	47.546	40	0.138	54.887	40	0.150	62.811
20	0.120	40.827	20	0.129	47.674	20	0.139	55.026	20	0.150	62.961
16600	0.120	40.947	15500	0.129	47.803	14400	0.139	55.164	13300	0.150	63.111
16580	0.121	41.068	15480	0.129	47.932	14380	0.139	55.303	13280	0.150	63.261
60	0.121	41.188	60	0.129	48.062	60	0.139	55.443	60	0.151	63.412
40	0.121	41.309	40	0.129	48.191	40	0.139	55.582	40	0.151	63.563
20	0.121	41.430	20	0.130	48.321	20	0.140	55.721	20	0.151	63.714
16500	0.121	41.551	15400	0.130	48.451	14300	0.140	55.861	13200	0.151	63.866
16480	0.121	41.673	15380	0.130	48.580	14280	0.140	56.001	13180	0.152	64.017
60	0.121	41.794	60	0.130	48.711	60	0.140	56.141	60	0.152	64.169
40	0.122	41.916	40	0.130	48.841	40	0.140	56.282	40	0.152	64.321
20	0.122	42.037	20	0.130	48.971	20	0.141	56.422	20	0.152	64.473
16400	0.122	42.159	15300	0.131	49.102	14200	0.141	56.563	13100	0.153	64.626
16380	0.122	42.281	15280	0.131	49.233	14180	0.141	56.704	13080	0.153	64.779
60	0.122	42.403	60	0.131	49.364	60	0.141	56.845	60	0.153	64.932
40	0.122	42.526	40	0.131	49.495	40	0.141	56.986	40	0.153	65.085
20	0.122	42.648	20	0.131	49.626	20	0.142	57.128	20	0.153	65.239
16300	0.123	42.771	15200	0.131	49.758	14100	0.142	57.270	13000	0.154	65.392
16280	0.123	42.894	15180	0.132	49.889	14080	0.142	57.412	12980	0.154	65.546
60	0.123	43.017	60	0.132	50.021	60	0.142	57.554	60	0.154	65.700
40	0.123	43.140	40	0.132	50.153	40	0.142	57.696	40	0.154	65.855
20	0.123	43.263	20	0.132	50.285	20	0.143	57.839	20	0.155	66.010
16200	0.123	43.386	15100	0.132	50.418	14000	0.143	57.982	12900	0.155	66.164
6180	0.124	43.510	15080	0.133	50.550	13980	0.143	58.124	12880	0.155	66.320
60	0.124	43.633	60	0.133	50.683	60	0.143	58.268	60	0.155	66.475
40	0.124	43.757	40	0.133	50.816	40	0.143	58.411	40	0.156	66.631
20	0.124	43.881	20	0.133	50.949	20	0.144	58.555	20	0.156	66.787
16100	0.124	44.005	15000	0.133	51.082	13900	0.144	58.698	12800	0.156	66.943
16080	0.124	44.130	14980	0.133	51.216	13880	0.144	58.842	12780	0.156	67.099
60	0.124	44.254	60	0.134	51.349	60	0.144	58.987	60	0.157	67.256
40	0.125	44.379	40	0.134	51.483	40	0.144	59.131	40	0.157	67.413
20	0.125	44.504	20	0.134	51.617	20	0.145	59.276	20	0.157	67.570
16000	0.125	44.628	14900	0.134	51.751	13800	0.145	59.420	12700	0.157	67.727
15980	0.125	44.754	14880	0.134	51.885	13780	0.145	59.565	12680	8.158	67.885
60	0.125	44.879	60	0.134	52.020	60	0.145	59.711	60	0.158	68.042
40	0.125	45.004	40	0.135	52.155	40	0.145	59.856	40	0.158	68.201
20	0.126	45.130	20	0.135	52.290	20	0.146	60.002	20	0.158	68.359

TABLES OF PARALLAX

$(H-h)$ ft.	Δp mm	$\Sigma \Delta p$ mm.	$(H-h)$ ft.	Δp mm	$\Sigma \Delta p$ mm.
12600	0.159	68.518	11500	0.174	77.652
12580	0.159	68.676	11480	0.174	77.827
60	0.159	68.836	60	0.174	78.001
40	0.159	68.995	40	0.175	78.176
20	0.160	69.164	20	0.175	78.351
12500	0.160	69.314	11400	0.175	78.526
12480	0.160	69.474	11380	0.176	78.701
60	0.160	69.635	60	0.176	78.877
40	0.161	69.796	40	0.176	79.054
20	0.161	69.956	20	0.177	79.230
12400	0.161	70.118	11300	0.177	79.407
12380	0.161	70.279	11280	0.177	79.584
60	0.162	70.441	60	0.177	79.761
40	0.162	70.603	40	0.178	79.939
20	0.162	70.765	20	0.178	80.117
12300	0.162	70.927	11200	0.178	80.296
12280	0.163	71.090	11180	0.179	80.474
60	0.163	71.253	60	0.179	80.654
40	0.163	71.416	40	0.179	80.833
20	0.164	71.580	20	0.180	81.013
12200	0.164	71.744	11100	0.180	81.193
12180	0.164	71.908	11080	0.180	81.373
60	0.164	72.072	60	0.181	71.554
40	0.165	72.237	40	0.181	81.735
20	0.165	72.402	20	0.181	81.916
12100	0.165	72.567	11000	0.182	82.097
12080	0.165	72.732	10980	0.182	82.280
60	0.166	72.898	60	0.182	82.462
40	0.166	73.064	40	0.183	82.645
20	0.166	73.230	20	0.183	82.828
12000	0.167	73.397	10900	0.183	83.011
11980	0.167	73.563	10880	0.184	83.194
60	0.167	73.730	60	0.184	83.378
40	0.167	73.896	40	0.184	83.563
20	0.168	74.065	20	0.185	83.747
11900	0.168	74.233	10800	0.185	83.932
11880	0.168	74.402	10780	0.185	84.118
60	0.168	74.570	60	0.186	84.304
40	0.169	74.739	40	0.186	84.490
20	0.169	74.908	20	0.186	84.676
11800	0.169	75.077	10700	0.187	84.863
11780	0.170	75.247	10680	0.187	85.050
60	0.170	75.417	60	0.187	85.237
40	0.170	75.587	40	0.188	85.425
20	0.170	75.758	20	0.188	85.613
11700	0.171	75.928	10600	0.188	85.802
11680	0.171	76.099	10580	0.189	85.991
60	0.171	76.271	60	0.189	86.180
40	0.172	76.442	40	0.190	86.369
20	0.172	76.614	20	0.190	86.559
11600	0.172	76.787	10500	0.190	86.750
11580	0.173	76.959	10480	0.191	86.940
60	0.173	77.132	60	0.191	87.131
40	0.173	77.305	40	0.191	87.323
20	0.173	77.479	20	0.192	87.514

$(H-h)$ ft.	Δp mm.	$\Sigma \Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma \Delta p$ mm.
10400	0.192	87.707	9650	0.104	95.191
10380	0.192	87.899	40	0.104	95.295
60	0.193	88.092	30	0.104	95.399
40	0.193	88.285	20	0.104	95.503
20	0.194	88.479	10	0.104	95.607
10300	0.194	88.673	9600	0.104	95.711
10280	0.194	88.867	9590	0.104	95.815
60	0.195	89.062	80	0.104	95.919
40	0.195	89.257	70	0.104	96.024
20	0.196	89.452	60	0.105	96.128
10200	0.196	89.648	50	0.105	96.233
10180	0.196	89.845	40	0.105	96.338
60	0.197	90.041	30	0.105	96.443
40	0.197	90.238	20	0.105	96.548
20	0.197	90.436	10	0.105	96.653
10100	0.198	90.634	9500	0.105	96.758
10080	0.198	90.832	9490	0.105	96.863
60	0.199	91.030	80	0.105	96.969
40	0.199	91.229	70	0.106	97.074
20	0.199	91.429	60	0.106	97.180
10000	0.200	91.629	50	0.106	97.286
9990	0.100	91.729	40	0.106	97.391
80	0.100	91.829	30	0.106	97.497
70	0.100	91.929	20	0.106	97.604
60	0.100	92.029	10	0.106	97.710
50	0.100	92.130	9400	0.106	97.816
40	0.101	92.230	9390	0.106	97.923
30	0.101	92.331	80	0.107	98.029
20	0.101	92.432	70	0.107	98.136
10	0.101	92.533	60	0.107	98.243
9900	0.101	92.634	50	0.107	98.349
9890	0.101	92.735	40	0.107	98.456
80	0.101	92.836	30	0.107	98.564
70	0.101	92.937	20	0.107	98.671
60	0.101	93.038	10	0.107	98.778
50	0.101	93.140	9300	0.107	98.886
40	0.102	93.241	9290	0.108	98.993
30	0.102	93.343	80	0.108	99.101
20	0.102	93.445	70	0.108	99.209
10	0.102	93.547	60	0.108	99.317
9800	0.102	93.649	50	0.108	99.425
9790	0.102	93.751	40	0.108	99.533
80	0.102	93.853	30	0.108	99.641
70	0.102	93.955	20	0.108	99.750
60	0.102	94.058	10	0.109	99.858
50	0.103	94.160	9200	0.109	99.967
40	0.103	94.263	9190	0.109	100.075
30	0.103	94.366	80	0.109	100.184
20	0.103	94.468	70	0.109	100.293
10	0.103	94.571	60	0.109	100.402
9700	0.103	94.674	50	0.109	100.512
9690	0.103	94.778	40	0.109	100.621
80	0.103	94.881	30	0.109	100.730
70	0.103	94.984	20	0.110	100.840
60	0.103	95.088	10	0.110	100.950

TABLES OF PARALLAX

$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.
9100	0.110	101.060	8550	0.117	107.294
9090	0.110	101.170	40	0.117	107.411
80	0.110	101.280	30	0.117	107.528
70	0.110	101.390	20	0.117	107.645
60	0.110	101.500	10	0.117	107.763
50	0.110	101.611	8500	0.118	107.880
40	0.111	101.721	8490	0.118	107.998
30	0.111	101.832	80	0.118	108.116
20	0.111	101.943	70	0.118	108.234
10	0.111	102.054	60	0.118	108.352
9000	0.111	102.165	50	0.118	108.470
8990	0.111	102.276	40	0.118	108.589
80	0.111	102.387	30	0.119	108.707
70	0.111	102.498	20	0.119	108.826
60	0.112	102.610	10	0.119	108.945
50	0.112	102.722	8400	0.119	109.064
40	0.112	102.833	8390	0.119	109.183
30	0.112	102.945	80	0.119	109.302
20	0.112	103.057	70	0.119	109.422
10	0.112	103.170	60	0.120	109.541
8900	0.112	103.282	50	0.120	109.661
8890	0.112	103.394	40	0.120	109.781
80	0.113	103.507	30	0.120	109.901
70	0.113	103.620	20	0.120	110.021
60	0.113	103.732	10	0.120	110.141
50	0.113	103.845	8300	0.120	110.261
40	0.113	103.958	8290	0.121	110.382
30	0.113	104.072	80	0.121	110.503
20	0.113	104.185	70	0.121	110.624
10	0.113	104.298	60	0.121	110.745
8800	0.114	104.412	50	0.121	110.866
8790	0.114	104.526	40	0.121	110.987
80	0.114	104.639	30	0.121	111.108
70	0.114	104.753	20	0.122	111.230
60	0.114	104.867	10	0.122	111.352
50	0.114	104.982	8200	0.122	111.474
40	0.114	105.096	8190	0.122	111.596
30	0.114	105.210	80	0.122	111.718
20	0.115	105.325	70	0.122	111.840
10	0.115	105.440	60	0.122	111.963
8700	0.115	105.555	50	0.123	112.085
8690	0.115	105.670	40	0.123	112.208
80	0.115	105.785	30	0.123	112.331
70	0.115	105.900	20	0.123	112.454
60	0.115	106.016	10	0.123	112.577
50	0.116	106.131	8100	0.123	112.701
40	0.116	106.247	8090	0.124	112.824
30	0.116	106.363	80	0.124	112.948
20	0.116	106.478	70	0.124	113.072
10	0.116	106.595	60	0.124	113.196
8600	0.116	106.711	50	0.124	113.320
8590	0.116	106.827	40	0.124	113.444
80	0.116	106.944	30	0.124	113.568
70	0.117	107.060	20	0.125	113.693
60	0.117	107.177	10	0.125	113.818

$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.	$(H-h)$ ft.	Δp mm.	$\Sigma\Delta p$ mm.
8000	0.125	113.943	7450	0.134	121.065
7990	0.125	114.068	40	0.134	121.200
80	0.125	114.193	30	0.134	121.334
70	0.125	114.318	20	0.135	121.469
60	0.126	114.444	10	0.135	121.604
50	0.126	114.570	7400	0.135	121.739
40	0.126	114.696	7390	0.135	121.874
30	0.126	114.822	80	0.135	122.010
20	0.126	114.948	70	0.136	122.145
10	0.126	115.074	60	0.136	122.281
7900	0.126	115.201	50	0.136	122.417
7890	0.127	115.327	40	0.136	122.553
80	0.127	115.454	30	0.136	122.689
70	0.127	115.581	20	0.137	122.826
60	0.127	115.708	10	0.137	122.963
50	0.127	115.836	7300	0.137	123.099
40	0.127	115.963	7290	0.137	123.237
30	0.128	116.091	80	0.137	123.374
20	0.128	116.218	70	0.137	123.511
10	0.128	116.346	60	0.138	123.649
7800	0.128	116.475	50	0.138	123.787
7790	0.128	116.603	40	0.138	123.925
80	0.128	116.731	30	0.138	124.063
70	0.129	116.860	20	0.138	124.201
60	0.129	116.989	10	0.139	124.340
50	0.129	117.118	7200	0.139	124.479
40	0.129	117.247	7190	0.139	124.618
30	0.129	117.376	80	0.139	124.757
20	0.129	117.505	70	0.139	124.896
10	0.130	117.635	60	0.140	125.036
7700	0.130	117.765	50	0.140	125.176
7690	0.130	117.895	40	0.140	125.316
80	0.130	118.025	30	0.140	125.456
70	0.130	118.155	20	0.140	125.596
60	0.130	118.286	10	0.141	125.737
50	0.131	118.416	7100	0.141	125.878
40	0.131	118.547	7090	0.141	126.019
30	0.131	118.678	80	0.141	126.159
20	0.131	118.809	70	0.141	126.301
10	0.131	118.941	60	0.142	126.442
7600	0.131	119.072	50	0.142	126.584
7590	0.132	119.204	40	0.142	126.726
80	0.132	119.336	30	0.142	126.868
70	0.132	119.468	20	0.142	127.011
60	0.132	119.600	10	0.143	127.153
50	0.132	119.732	7000	0.143	127.296
40	0.133	119.865	6990	0.143	127.439
30	0.133	119.997	80	0.143	127.582
20	0.133	120.130	70	0.143	127.725
10	0.133	120.263	60	0.144	127.869
7500	0.133	120.397	50	0.144	128.013
7490	0.133	120.530	40	0.144	128.157
80	0.134	120.664	30	0.144	128.301
70	0.134	120.797	20	0.144	128.445
60	0.134	120.931	10	0.145	128.590

TABLES OF PARALLAX

(H−h) ft.	Δp mm.	ΣΔp mm.	(H−h) ft.	Δp mm.	ΣΔp mm.
6900	0.145	128.735	6400	0.156	136.257
6890	0.145	128.880	6390	0.156	136.413
80	0.145	129.025	80	0.157	136.570
70	0.145	129.170	70	0.157	136.727
60	0.146	129.316	60	0.157	136.884
50	0.146	129.462	50	0.157	137.041
40	0.146	129.608	40	0.158	137.199
30	0.146	129.754	30	0.158	137.357
20	0.147	129.901	20	0.158	137.515
10	0.147	130.048	10	0.158	137.673
6800	0.147	130.195	6300	0.159	137.832
6790	0.147	130.342	6290	0.159	137.991
80	0.147	130.489	80	0.159	138.150
70	0.148	130.637	70	0.159	138.309
60	0.148	130.785	60	0.160	138.469
50	0.148	130.933	50	0.160	138.629
40	0.148	131.081	40	0.160	138.789
30	0.148	131.229	30	0.160	138.949
20	0.149	131.378	20	0.161	139.110
10	0.149	131.527	10	0.161	139.271
6700	0.149	131.676	6200	0.161	139.432
6690	0.149	131.825	6190	0.161	139.593
80	0.150	131.975	80	0.162	139.755
70	0.150	132.125	70	0.162	139.917
60	0.150	132.275	60	0.162	140.079
50	0.150	132.425	50	0.162	140.242
40	0.150	132.576	40	0.163	140.404
30	0.151	132.726	30	0.163	140.567
20	0.151	132.877	20	0.163	140.731
10	0.151	133.028	10	0.164	140.894
6600	0.151	133.180	6100	0.164	141.058
6590	0.152	133.332	6090	0.164	141.222
80	0.152	133.483	80	0.164	141.386
70	0.152	133.635	70	0.165	141.551
60	0.152	133.788	60	0.165	141.716
50	0.153	133.940	50	0.165	141.881
40	0.153	134.093	40	0.165	142.046
30	0.153	134.246	30	0.166	142.212
20	0.153	134.399	20	0.166	142.378
10	0.153	134.553	10	0.166	142.544
6500	0.154	134.707	6000	0.167	142.711
6490	0.154	134.861	5990	0.167	142.878
80	0.154	135.015	80	0.167	143.045
70	0.154	135.169	70	0.167	143.212
60	0.155	135.324	60	0.168	143.380
50	0.155	135.479	50	0.168	143.548
40	0.155	135.634	40	0.168	143.716
30	0.155	135.789	30	0.168	143.884
20	0.156	135.945	20	0.169	144.053
10	0.156	136.101	10	0.169	144.222

(H−h) ft.	Δp mm.	ΣΔp mm.	(H−h) ft.	Δp mm.	ΣΔp mm.
5900	0.169	144.392	5440	0.184	152.509
5890	0.170	144.561	30	0.184	152.693
80	0.170	144.731	20	0.184	152.877
70	0.170	144.901	10	0.185	153.062
60	0.170	145.072	5400	0.185	153.247
50	0.171	145.243	5390	0.185	153.432
40	0.171	145.414	80	0.186	153.618
30	0.171	145.585	70	0.186	153.804
20	0.172	145.757	60	0.186	153.990
10	0.172	145.929	50	0.187	154.177
5800	0.172	146.101	40	0.187	154.364
5790	0.173	146.274	30	0.187	154.552
80	0.173	146.446	20	0.188	154.739
70	0.173	146.620	10	0.188	154.928
60	0.173	146.793	5300	0.188	155.116
50	0.174	146.967	5290	0.189	155.305
40	0.174	147.141	80	0.189	155.494
30	0.174	147.315	70	0.190	155.684
20	0.175	147.490	60	0.190	155.874
10	0.175	147.665	50	0.190	156.064
5700	0.175	147.840	40	0.191	156.255
5690	0.176	148.016	30	0.191	156.446
80	0.176	148.192	20	0.191	156.637
70	0.176	148.368	10	0.192	156.829
60	0.177	148.544	5200	0.192	157.021
50	0.177	148.721	5190	0.192	157.213
40	0.177	148.898	80	0.193	157.406
30	0.177	149.076	70	0.193	157.599
20	0.178	149.254	60	0.194	157.793
10	0.178	149.432	50	0.194	157.987
5600	0.178	149.610	40	0.194	158.181
5590	0.179	149.789	30	0.195	158.376
80	0.179	149.968	20	0.195	158.571
70	0.179	150.147	10	0.196	158.767
60	0.180	150.327	5100	0.196	158.963
50	0.180	150.507	5090	0.196	159.159
40	0.180	150.687	80	0.197	159.356
30	0.181	150.868	70	0.197	159.553
20	0.181	151.049	60	0.197	159.750
10	0.181	151.230	50	0.198	159.948
5500	0.182	151.412	40	0.198	160.146
5490	0.182	151.594	30	0.199	160.345
80	0.182	151.776	20	0.199	160.544
70	0.183	151.959	10	0.199	160.743
60	0.183	152.142	5000	0.200	160.943
50	0.183	152.325	4990	0.200	161.143

(3) If the table of parallax is not available, computation may be made using the parallax equation. The parallax equation is the expression for the difference in elevation corresponding to unit difference of parallax. Refer to figure 7 and the following equation.

(*a*) Referring to figure 7, the parallax equation may be expressed as—

$$dh/dp = (H-h)^2/fB$$

(*b*) This is derived from the equation:

$$p/f = B/(H-h)$$

which is obtained from the similar triangle relationship as shown in figure 7 where—

H = the altitude from which the photographs were taken above sea level (or other datum plane)

h = height of point A in the photograph above the selected datum plane.

f = the focal length of the lens of the taking camera

B = the air base of the photographs (distance aircraft moved between exposures)

p = the absolute parallax of point A

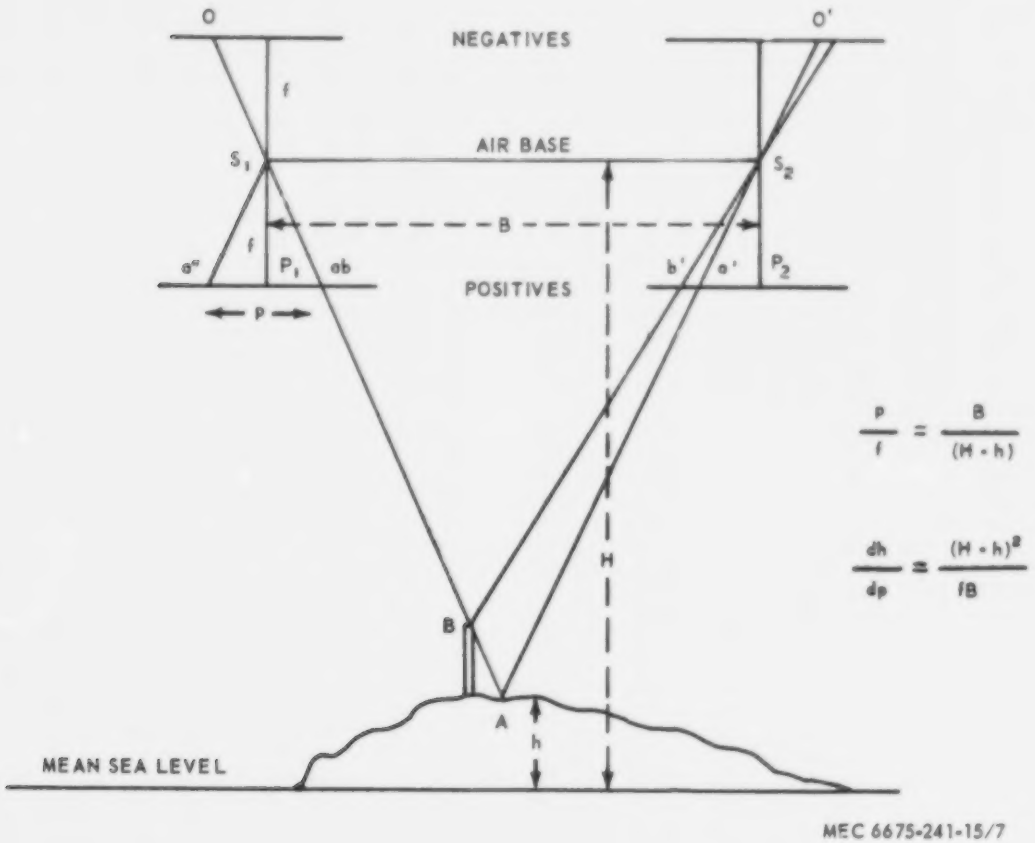


Figure 7. The parallax equation.

(*c*) The parallax equation usually is put into terms of the measured stereoscopic base of the photographs (Bm), for use in determining elevations from the parallax table.

$$B = Bm\,\frac{(H-h)}{f}$$

$$\text{therefore } dp = fBm\,\frac{\frac{(H-h)}{f}}{(H-h)^2} = \frac{Bm}{H-h}$$

$$\text{or } dp = \frac{Bm\,dh}{H-h}$$

(*d*) For small values of h compared with H, as for example, the vertical distance between two contours compared with the flight altitude.

$$\Delta P = \frac{Bm\Delta h}{H-h}$$

where—

Δp = the difference in parallax between two points on the photographs and is in millimeters if Bm is in millimeters

h = the difference in elevation between these same two points and is in feet if H and h are in feet

(*e*) The parallax table (table 1) is based on this equation but with a value of 100 mm for Bm. In using the table, actual parallax difference between points for any set of photographs is found by taking Δp as obtained from the tables and multiplying by Bm/100. The reverse procedure is employed to find difference in elevation from the measured difference in parallax. Column $\Sigma \Delta p$ of the parallax table is the sum of the increments of parallax difference between the limits of (H-h) = 25,000 feet and (H-h) = 5,000 feet.

(4) Ordinarily it is not necessary to compute elevation differences for parallax differences of less than 1 mm. Usually an interpolation along a straight line plotted to a base of 1 mm is sufficient over the corresponding range of elevations. For contouring, such a curve may be followed to advantage since, by its use, it is possible to read directly the micrometer setting corresponding to any desired contour level, or to determine any elevation directly from any micrometer setting.

(5) If vertical control is abundant, the micrometer settings for given elevations may be obtained directly by stereoscopic adjustment of the floating marks on the poins of known elevation. Thus, the difference in the micrometer setting corresponding to the difference in the elevation of the two or more points under consideration is a ready determination of the parallax for similar points. If this method is exployed, it is advisable to take the mean of several such readings over different parts of the photographs.

(6) It is easy to determine differences in elevation between any two points in a given area by any of the above methods, thereby accomplishing one of the most valuable functions of the stereocomparagraph. Such elevation differences may be rapidly obtained from suitable photographs and used to check or to supplement the information obtained from ordinary topographic maps, or for the compilation of maps in unknown territory. The application of this method in determining the best route between two points in rough terrain for road building, or right of way reconnaissance, will be found valuable.

(7) Lines of constant elevation are traced rapidly by clamping the micrometer at the reading corresponding to the desired elevation and viewing the floating mark as it is held in contact with the stereoscopic model while moving the instrument over the photographs, thereby causing the pencil to trace a continuous line. Planimetric detail such as roads, rivers, etc. is compliled in a similar manner, except that the micrometer setting is varied to maintain the floating mark in contact with the stereoscopic model during plotting.

CHAPTER 3

OPERATOR AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. OPERATOR AND ORGANIZATIONAL MAINTENANCE TOOLS AND EQUIPMENT

14. Special Tools and Equipment

No special tools or equipment are required to perform maintenance on the stereocomparagraph.

15. Basic Issue Tools and Equipment

Tools and repair parts issued with or authorized for the stereocomparagraph are listed in the basic issue items list, appendix II of this manual.

16. Organizational Maintenance Repair Parts

Organizational maintenance repair parts are listed and illustrated in appendix IV of this manual.

Section II. PREVENTIVE MAINTENANCE SERVICES

17. General

To insure that the stereocomparagraph is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance services to be performed are listed and described in paragraph 18. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded, together with corrective action taken, on DA Form 2404 (Equipment Inspection and Maintenance Worksheet) at the earliest possible opportunity.

18. Daily Preventive Maintenance Services

Figure 8 contains an illustrated tabulated listing of the daily preventive maintenance services which must be performed by the operator. The item numbers are listed consecutively and indicate the sequence of minimum requirements.

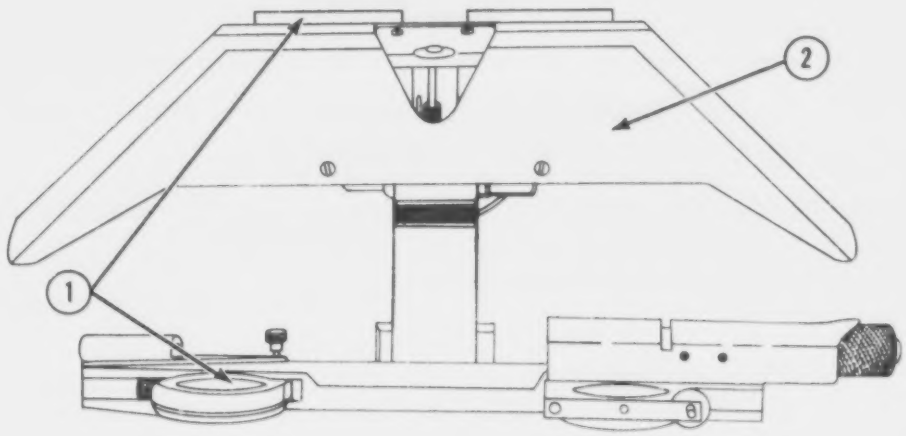
19. Quarterly Preventive Maintenance

Since the quarterly preventive maintenance services are the same as the daily preventive maintenance services, the illustration for quarterly preventive maintenance services is omitted.

PREVENTIVE MAINTENANCE SERVICES

DAILY

TM 5-6675-241-15 | Military Design | Stereocomparagraph



ITEM		PAR REF
1	LENS. Inspect for cracks and breaks. Clean lens with ammonia water and soft cotton.	
2	MIRRORS. Inspect for cracks and breaks. Clean mirrors with ammonia water and soft cotton.	

MEC 6675-241-15/8

Figure 8. Daily preventive maintenance services.

Section III. OPERATOR'S MAINTENANCE

20. General

This section contains information on the operator's maintenance of the stereocomparagraph which is not covered in paragraph 18. This maintenance consists of the replacement of the lamps.

21. Lamps

a. Removal. Refer to figure 9 and remove the lamps.

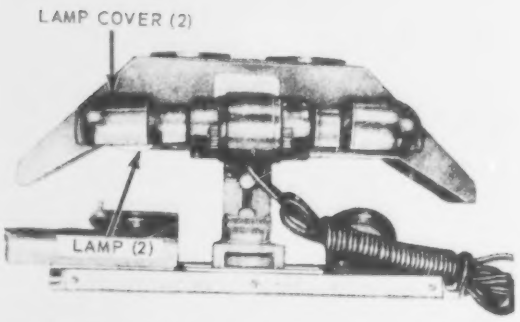
b. Cleaning and Inspection.

(1) Clean the lamps with a clean cloth.

(2) Inspect for cracks, breaks, and a burned-out condition.

(3) Replace a damaged or defective lamp.

c. Installation. Refer to figure 9 and install the lamps.



STEP 1. REMOVE LAMP COVER
STEP 2. REMOVE LAMP.
STEP 3. INSTALL NEW LAMP.
STEP 4. INSTALL LAMP COVER.
STEP 5. INSTALL OTHER LAMP IN A SIMILAR MANNER.

MEC 6675-241-15/9

Figure 9. Lamps, removal and installation.

Section IV. BASE ASSEMBLY

22. General

This section contains information on the maintenance of the stereocomparagraph base assembly which is the responsibility of organizational maintenance. This includes the base, chucking plates, scale, shield, and micrometer.

23. Base Assembly

a. Removal. Refer to figure 10 and remove the base assembly.

b. Cleaning and Inspection.

(1) Clean the base assembly with an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, breaks, scored mating surfaces, and other damage.

(3) Replace a damaged or defective base assembly.

c. Installation. Refer to figure 10 and install the base assembly.

24. Chucking Plates

a. Removal. Refer to figure 11 and remove the chucking plates.

b. Cleaning and Inspection.

(1) Clean the chucking plates with an approved cleaning solvent and dry thoroughly.

(2) Inspect for nicks, bends, and other damage.

(3) Replace a damaged or defective chucking plate.

c. Installation. Refer to figure 11 and install the chucking plates.

25. Scale

a. Removal. Refer to figure 11 and remove the scale.

b. Cleaning and Inspection.

(1) Clean the scale with an approved cleaning solvent and dry thoroughly.

(2) Inspect for bends and illegibility of markings.

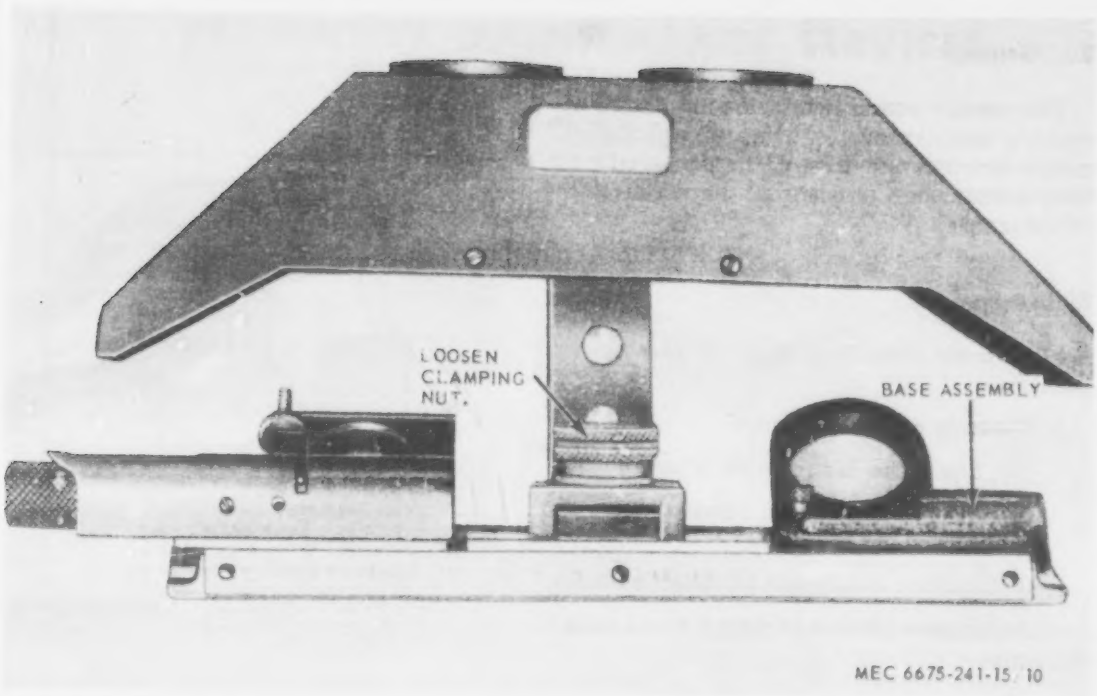


Figure 10. Base assembly, removal and installation.

(3) Replace a damaged or defective scale.

c. Installation. Refer to figure 11 and install the scale.

26. Shield

a. Removal. Refer to figure 11 and remove the shield.

b. Cleaning and Inspection.

(1) Clean the shield with an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, bends, and dents.

(3) Replace a damaged shield.

c. Installation. Refer to figure 11 and install the shield.

27. Micrometer

a. Removal.

(1) Remove the shield (para 26).

(2) Refer to figure 12 and remove the micrometer.

b. Cleaning and Inspection.

(1) Clean the micrometer with an approved cleaning solvent and dry thoroughly.

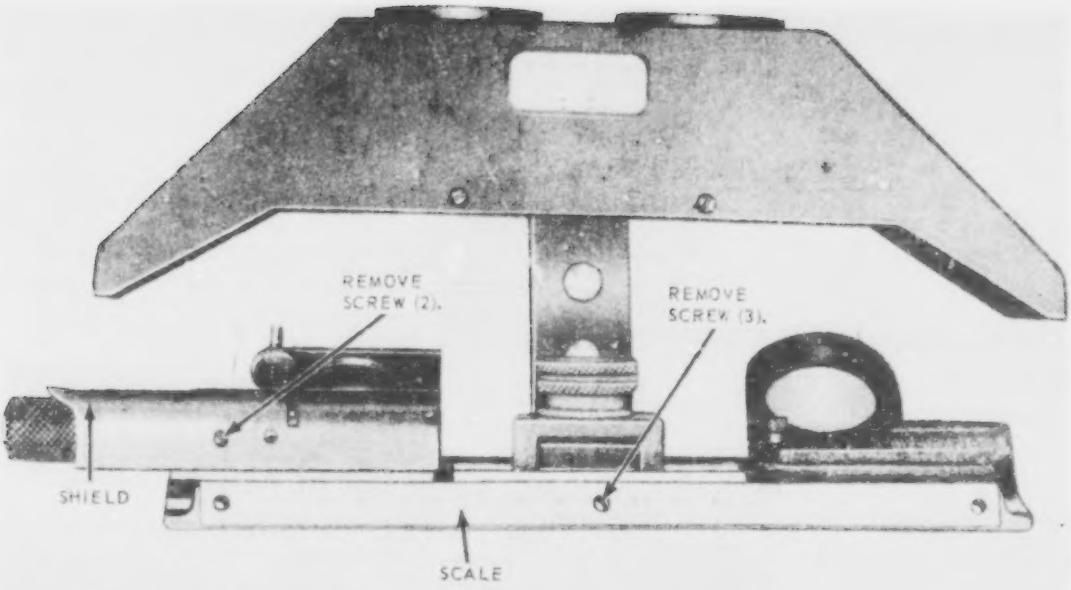
(2) Inspect for nicks, scores, illegibility of markings, and other damage.

(3) Replace a damaged or defective micrometer.

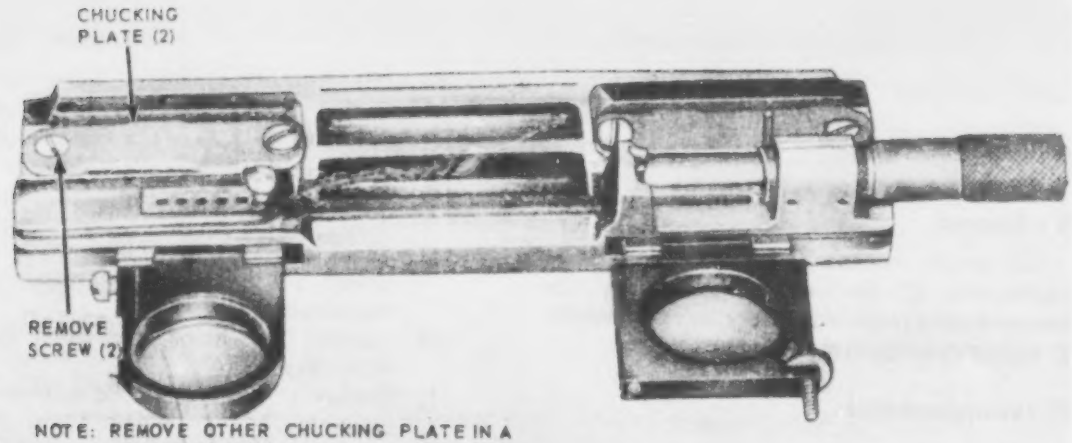
c. Installation.

(1) Refer to figure 12 and install the micrometer.

(2) Install the shield (para 26).



A. SCALE AND SHIELD.



B. CHUCKING PLATES.

Figure 11. Chucking plates, scale, and shield, removal and installation.

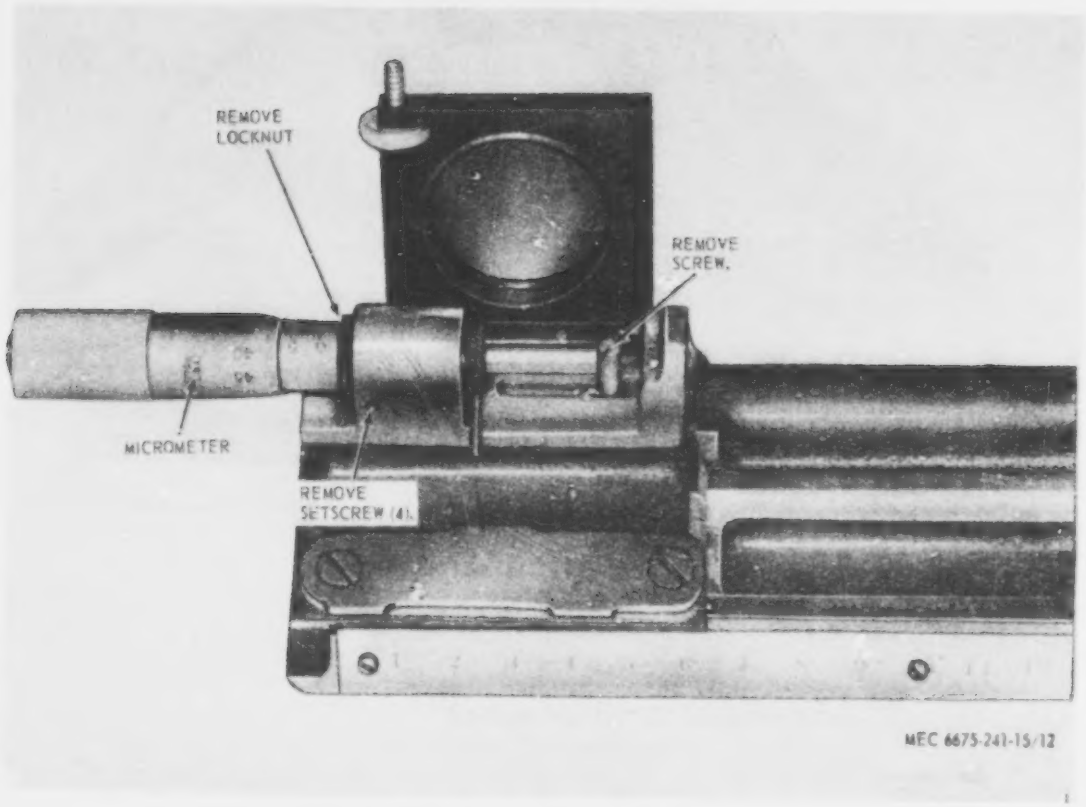


Figure 12. Micrometer, removal and installation.

Section V. LENS ASSEMBLIES

28. General

This section contains information on the maintenance of the lens assemblies of the stereocomparagraph which are the responsibility of organizational maintenance.

29. Lens Assemblies

a. Removal.

(1) Remove the micrometer (para 27).

(2) Refer to figure 13 and remove the lens assemblies.

b. Cleaning and inspection.

(1) Clean the lens assemblies with soft cotton and ammonia water and dry thoroughly.

(2) Inspect for chips, scratches, and other damage.

(3) Replace a damaged or defective lens assembly.

c. Installation.

(1) Refer to figure 13 and install the lens assemblies.

(2) Install the micrometer (para 27).

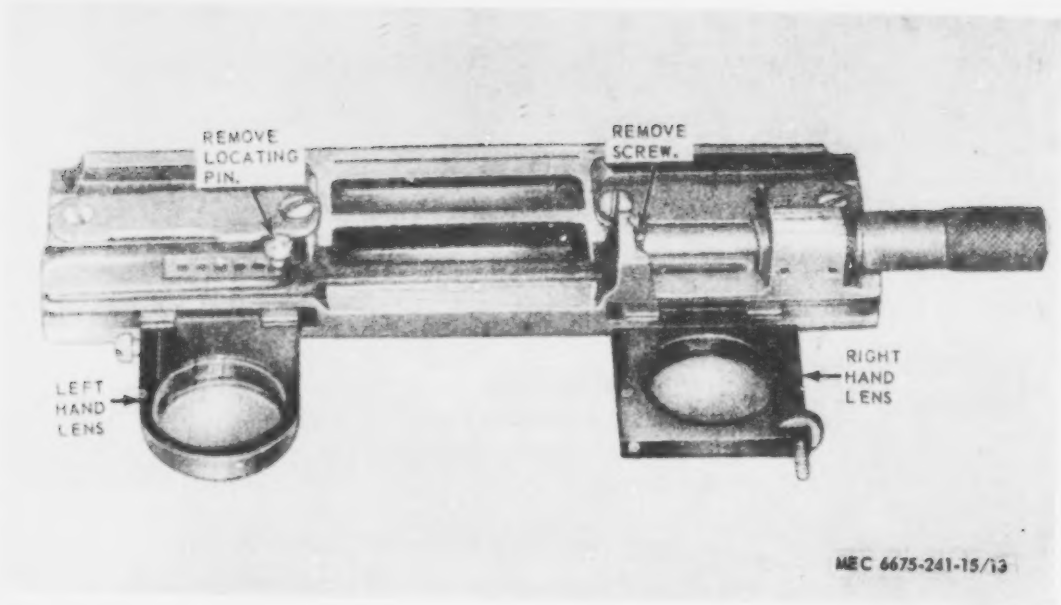


Figure 13. Lens assemblies, removal and installation.

Section VI. LIGHT ASSEMBLY

30. General

The light assembly which is mounted on the support assembly may be used to illuminate the work area when natural light is not available, or sufficient. This section contains information on the maintenance of the light assembly.

31. Light Assembly

a. Removal.

(1) Remove the lamps (para 21).

(2) Refer to figure 14 and remove the light assembly.

b. Cleaning and Inspection.

(1) Clean the light assembly with a clean, lint-free cloth.

(2) Inspect for cracks, breaks, frayed insulation, and other damage.

(3) Replace a damaged or defective light assembly.

c. Installation.

(1) Refer to figure 14 and install the light assembly.

(2) Install the lamps (para 21).

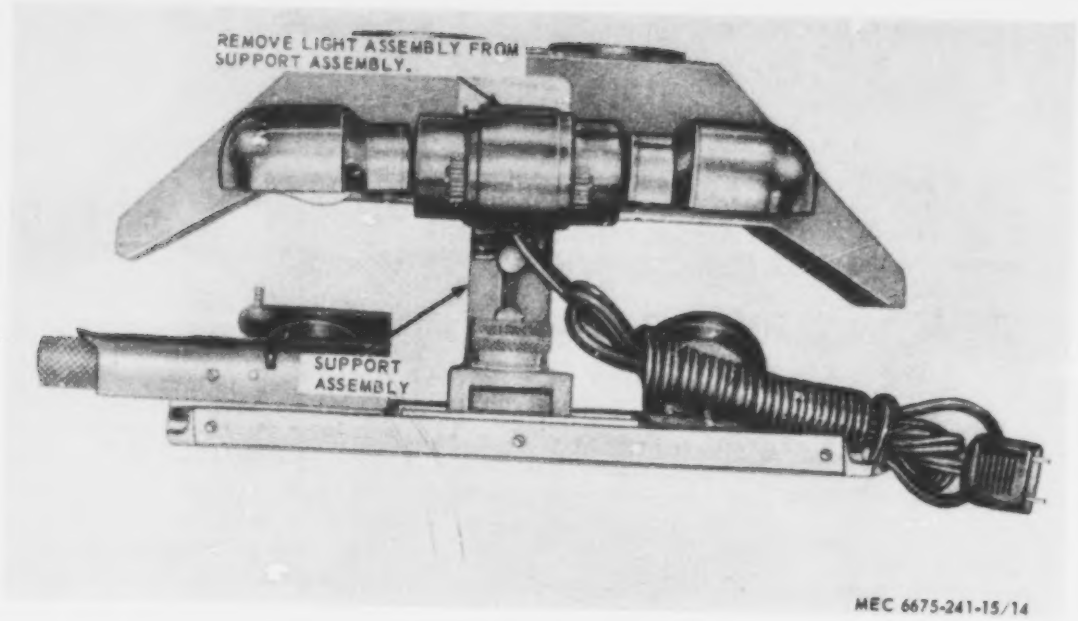


Figure 14. Light assembly, removal and installation.

Section VII. SUPPORT ASSEMBLY

32. General

This section contains information on the maintenance of the support assembly which is the responsibility of organizational maintenance.

33. Support Assembly

a. Removal.

(1) Remove the light assembly (para 31).

(2) Remove the base assembly (para 23).

(3) Refer to figure 15 and remove the support assembly.

b. Disassembly. Refer to figure 16 and disassemble the support assembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts except the mirror and gasket with an approved cleaning solvent and dry thoroughly. Clean the mirror with soft cotton and ammonia water.

(2) Inspect for cracks, breaks, scratches, and other damage.

(3) Replace a damaged or defective part.

d. Reassembly. Refer to figure 16 and reassemble the support assembly.

e. Installation.

(1) Refer to figure 15 and install the support assembly.

(2) Install the base assembly (para 23).

(3) Install the light assembly (para 31).

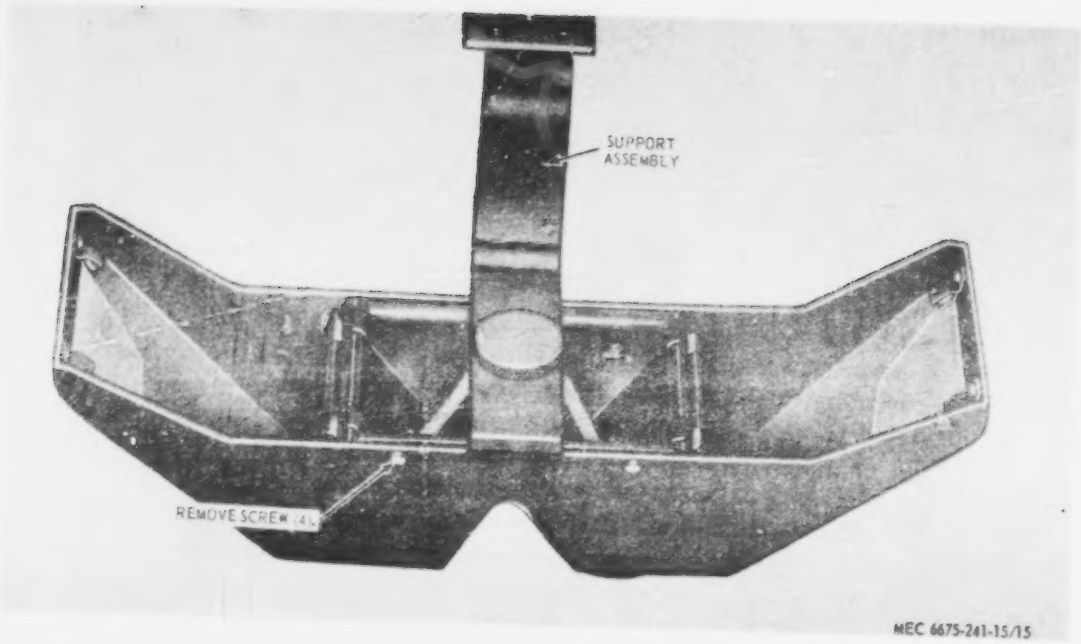
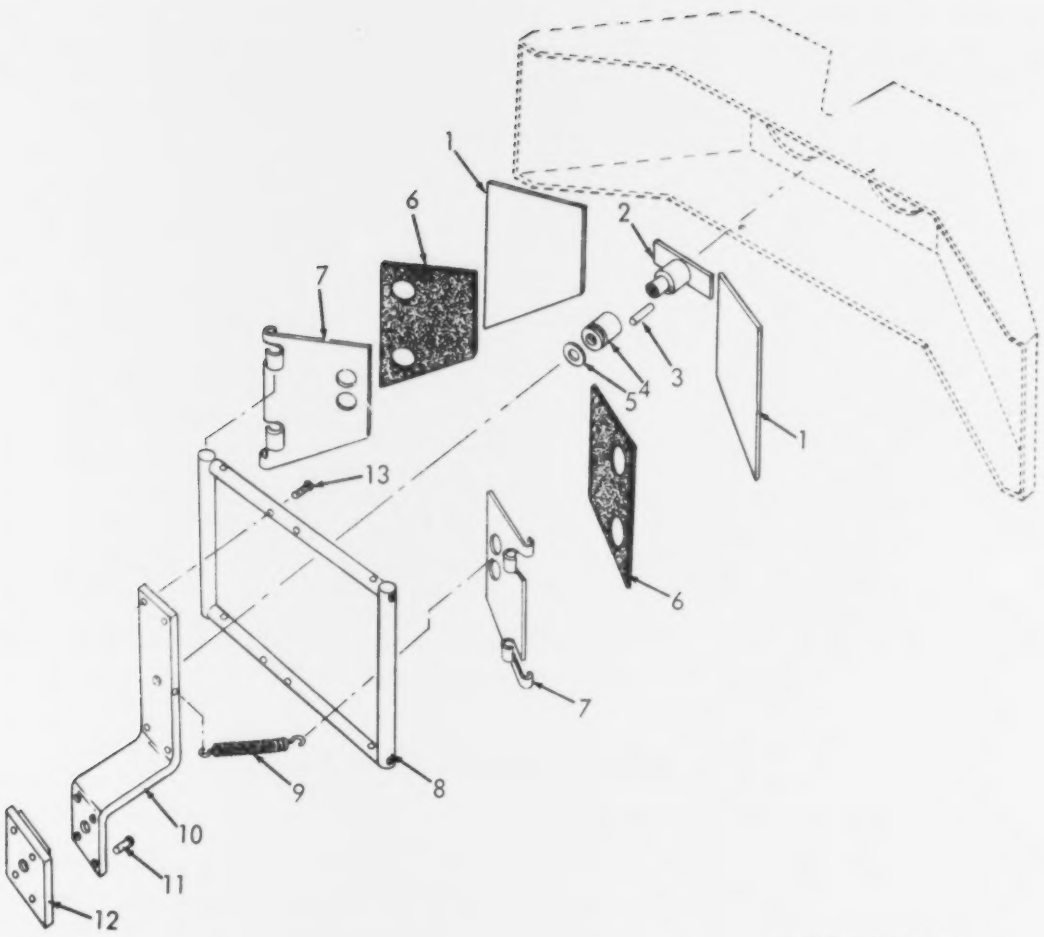


Figure 15. Support assembly, removal and installation.



MEC 6675-241-15/16

1	Mirror	6	Gasket	11	Screw
2	Rest	7	Mount	12	Slide bar
3	Pin	8	Frame	13	Screw
4	Screw	9	Spring		
5	Washer	10	Bar		

Figure 16. Support assembly, disassembly and reassembly.

Section VIII. REFLECTOR ASSEMBLY

34. General

The reflector assembly is mounted on the support assembly. This section contains information on the maintenance of the reflector assembly.

35. Reflector Assembly

a. Removal.

(1) Remove the light assembly (para 1).

(2) Refer to figure 17 and remove the reflector assembly.

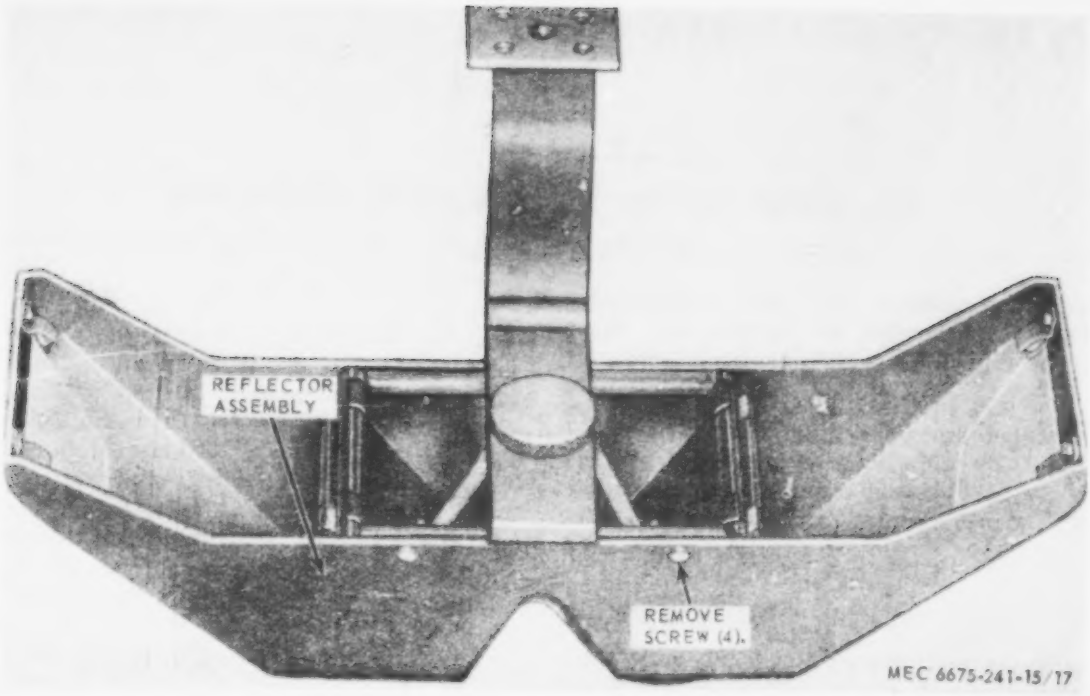


Figure 17. Reflector assembly, removal and installation.

b. Disassembly. Refer to figure 18 and disassemble the reflector assembly.

c. Cleaning, Inspection, and Repair.

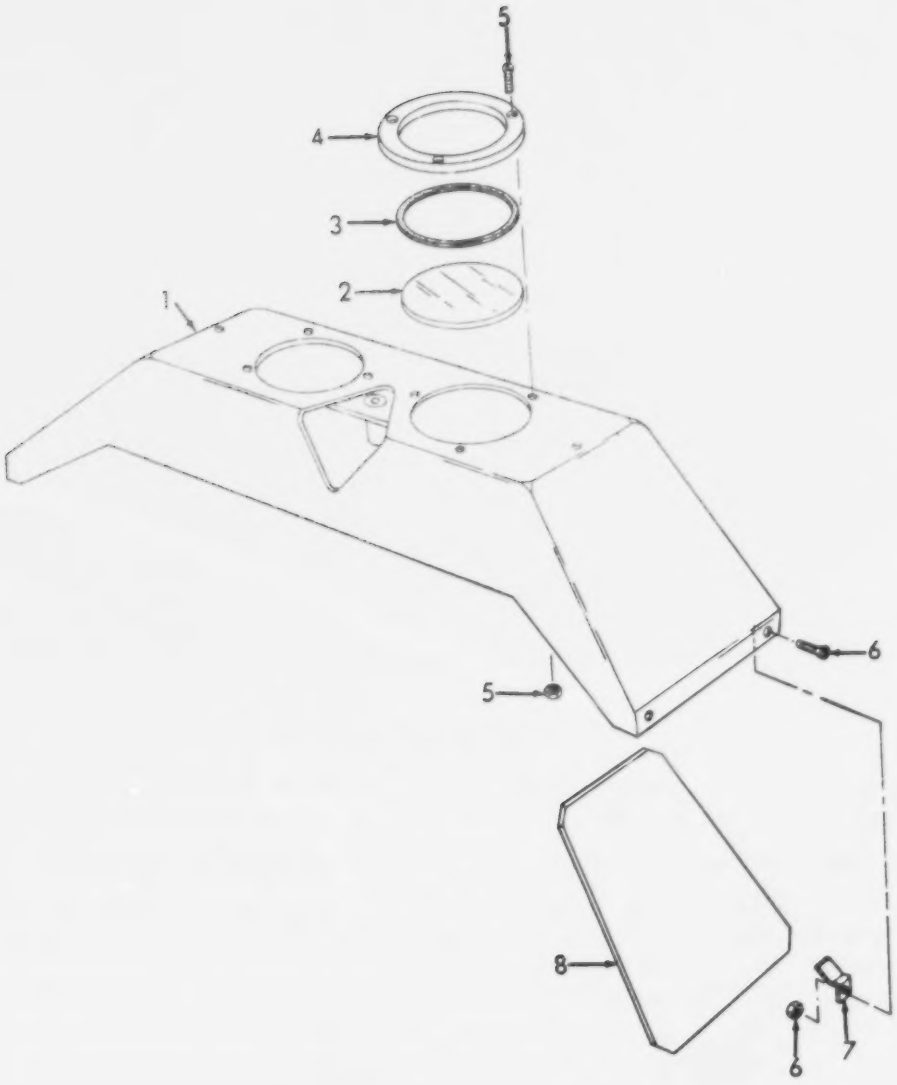
(1) Clean all parts except the mirror and gasket with an approved cleaning solvent and dry thoroughly. Clean the mirror with soft cotton and ammonia water.

(2) Inspect for cracks, breaks, dents, scratches, and other damage.

(3) Replace a damaged or defective part.

d. Reassembly. Refer to figure 18 and reassemble the reflector assembly.

e. Installation. Refer to figure 17 and install the reflector assembly.



MEC 6675-241-15/18

1 Shield
2 Lens
3 Gasket
4 Retainer
5 Screw and nut
6 Screw and nut
7 Clamp
8 Mirror

Figure 18. Reflector assembly, disassembly and reassembly.

CHAPTER 4

DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

36. General

When capture or abandonment of the stereocomparagraph to an enemy is imminent, the responsible unit commander must make the decision either to destroy the equipment or render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method of demolition is employed, it is essential to destroy the same vital parts of all stereocomparagraphs and all corresponding repair parts!

37. Demolition To Render the Equipment Inoperative

Use sledge hammers, crowbars, picks, axes, or any other tools which may be available to destroy the stereocomparagraph.

38. Other Demolition Methods

a. Scattering and Concealment. Remove all easily accessible parts such as the light assembly, stereoscope, lens, etc., and scatter them through dense foliage, bury them in dirt and sand, or throw them in a lake, stream, or other body of water.

b. Burning. Pack rags, clothing, or canvas under and around the stereocomparagraph. Saturate this packing with gasoline, oil, or diesel fuel and ignite.

c. Submersion. Totally submerge the stereocomparagraph in a body of water to provide water damage and concealment. Salt water will do greater damage to metal parts than fresh water.

39. Training

All operators should receive thorough training in the destruction of the stereocomparagraph. Refer to FM 5-25. Simulated destruction, using all of the methods listed above, should be included in the operator training program. It must be emphasized in training that demolition operations usually are necessitated by critical situations when time available for carrying out destruction is limited. For this reason, it is necessary that operators be thoroughly familiar with all methods of destruction of equipment and be able to carry out demolition instructions without reference to this or any other manual.

CHAPTER 5

SHIPMENT AND LIMITED STORAGE

Section I. SHIPMENT WITHIN ZONE OF INTERIOR

40. Preparation of Equipment for Shipment

a. General. Detailed instructions for the preparation of the stereocomparagraph for domestic shipment are outlined within this paragraph.

b. Inspection. Equipment will be inspected for any unusual conditions such as damage, accumulation of water, rusting, and pilferage. Inspection will be completed as outlined in the quarterly preventive maintenance services. All deficiencies will be recorded on DA Form 2404.

c. Cleaning and Drying. Thorough cleaning and drying by an approved technique is the first essential procedure in any effective preservation process. Approved methods of cleaning and drying, types of preservatives, and methods of application are described in TM 38-230.

d. Painting. Paint all surfaces where paint has been removed or damaged. Refer to TM 9-213 for detailed cleaning and painting instructions.

e. Marking. Will conform to MIL-STD-129.

41. Loading Equipment for Shipment

No specific instructions are required for loading the stereocomparagraph for shipment.

Section II. LIMITED STORAGE

42. Preparation of Equipment for Storage

a. General. Detailed instructions for perserving and maintaining the stereocomparagraph in limited storage are outlined within this paragraph. Limited storage is defined as storage not to exceed 6 months.

b. Inspection. Equipment will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. Inspection will be completed as outlined in the quarterly preventive maintenance services. All deficiencies will be recorded on DA Form 2404.

43. Inspection and Maintenance of Equipment in Storage

a. Inspection. When equipment has been placed in storage, all scheduled preventive maintenance services, including inspection will be suspended and preventive maintenance inspection will be performed as specified herein.

b. Worksheet and Preventive Maintenance. DA Form 2404 and applicable forms listed in TM 38-750 will be prepared for each major item of equipment when initially placed in limited storage and every 90 days thereafter. Perform required maintenance promptly to make sure equipment is mechanically sound and ready for immediate use.

CHAPTER 6

DIRECT AND GENERAL SUPPORT AND DEPOT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

44. Scope

a. The following instructions are for direct and general support and depot maintenance personnel. They contain information that is beyond the scope of the tools, equipment, personnel, or supplies normally available to organizational maintenance.

b. Appendix I includes the list of publications applicable to direct and general support and depot maintenance. Appendix III contains the maintenance allocation chart. The direct and general support and depot maintenance repair parts and special tool lists are listed in appendix IV.

45. Record and Report Forms

For record and report forms applicable to direct and general support and depot maintenance, refer to TM 38-750.

Note. Applicable forms, excluding Standard Form 46 which is carried by the operator will be kept in a canvas bag carried with the equipment.

Section II. DESCRIPTION AND DATA

46. Description

For a complete description of the stereocomparagraph, refer to paragraph 3.

47. Tabulated Data

a. General. Tabulated data on the stereocomparagraph for direct and general support and depot maintenance is not required.

b. Time Standards. Table 2 lists the number of man-hours required under normal conditions for various operations in the maintenance and repair of the stereocomparagraph. The man-hours listed are not intended to be rigid standards. Under adverse conditions, the operations will take longer; but under ideal conditions with highly skilled mechanics, most of the operations can be accomplished in considerably less time.

Table 2. Time Standards

		Hours
18	BODY, CAB, HOOD OR HULL	
1808	Carrying Cases	
	Case, carrying	0.1
67	PRECISION INSTRUMENTS AND SYSTEMS, MECHANICAL, ELECTRICAL, ELECTRONIC	
6700	Stereocomparagraph	
	Stereocomparagraph	0.1
6702	Optics	
	Lens assembly (ea)	0.3
	Reflector assembly	0.2
6703	Mechanical, Structural and Precision Parts	
	Base assembly	0.3
	Support assembly	0.2
	Holder assembly	0.1
	Arm assembly, sketching	0.4
6705	Lamps	
	Light assembly	0.1
	Lamps (ea)	0.1

Section III. SPECIAL TOOLS AND EQUIPMENT

48. Special Tools and Equipnment

No special tools or equipment are required by direct and general support and depot maintenance personnel to perform maintenance on the stereocomparagraph.

49. Direct and General Support and Depot Maintenance Repair Parts

Direct and general support and depot maintenance repair parts are listed and illustrated in appendix IV.

50. Specially Designed Tools and Equipment

No specially designed tools and equipment are required by direct and general support and depot maintenance personnel to perform maintenance on the stereocomparagraph.

APPENDIX I

REFERENCES

1. Dictionaries of Terms and Abbreviations

AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.

2. Painting and Preservation

TM 9-213	Painting Instructions for Field Use.

3. Preventive Maintenance

AR 750-5	Organization, Policies, and Responsibilities for Maintenance Operations.
TM 38-750	Army Equipment Record Procedures.

4. Publication Indexes

DA Pam 108-1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings.
DA Pam 310-1	Index of Administrative Publications.
DA Pam 310-2	Index of Blank Forms.
DA Pam 310-3	Index of Doctrinal, Training, and Organizational Publications.
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 4, 6, 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Orders, and Modification Work Orders.
DA Pam 310-5	Index of Graphic Training Aids, and Devices.
DA Pam 310-6	Index of Supply Catalogs and Supply Manuals.

5. Shipment and Limited Storage

AR 743-505	Limited Storage of Corps of Engineers Mechanical Equipment.
MIL-STD-129	Marking for Shipment and Storage.
TM 38-230	Preservation, Packaging, and Packing of Military Supplies and Equipment.

6. Training Aids

FM 21-6	Techniques of Military Instructions.
FM 21-30	Military Symbols.

APPENDIX II.

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. General

Section II lists the accessories, tools, and publications required for maintenance and operation by the operator, initially issued with, or authorized for the stereocomparagraph.

2. Explanation of Columns Contained in Section II

a. Source Codes.

(1) *Materiel.* This space is left blank. For identification of agencies assigned supply responsibility for parts refer to appropriate Federal and Department of Army Supply Catalogs.

(2) *Source.* The selection status and source of supply for each part are indicated by one of the following code symbols:

(*a*) P—applied to high-mortality repair parts which are stocked in or supplied from the supply service depot system, and authorized for use at indicated maintenance level.

(*b*) P1—applies to repair parts which are low-mortality parts, stocked in or supplied from supply service depots, and authorized for installation at indicated maintenance level.

(*c*) M—applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance level.

(*d*) X2—applied to repair parts which are not stocked. The indicated maintenance echelon requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.

(3) *Maintenance.* The lowest maintenance level authorized to use, stock, install, or manufacture the parts is indicated by the following code symbol:

O—Organizational Maintenance

(4) *Recoverability.* Repair parts and/or tool and equipment items that are recoverable are indicated by one of the following code symbols:

(*a*) R—Applied to repair parts and assemblies which are economically repairable at direct and general support maintenance activities and normally are furnished by supply on an exchange basis.

(*b*) T—applied to high-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance facilities.

(*c*) U—applied to repair parts specifically selected for salvage by reclamation unit because of precious metal content, critical materials, high-dollar value reusable casings, casting, and the like.

Note. When no code is shown in the recoverability column the part is considered expendable.

b. Federal Stock Number. The Federal stock number will be shown in this column, and will be used for requisitioning purposes.

c. Description.

(1) The item name and a brief description of the part are shown.

(2) A five-digit Federal supply code for manufacturers and/or other supply services is shown in parentheses followed by the manufacturer's part number. This number will be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock number column.

(3) The letters GE, shown in parentheses immediately following the description, indicates General Engineer supply responsibility for the part.

d. Unit of Issue. If no abbreviation is shown in this column, the unit of issue is "each".

e. Quantity Authorized. This column lists the quantities of repair parts, accessories, tools, or publications authorized for issue to the equipment operator or crew as required.

f. Quantity Issued With Equipment. This column lists the quantities of repair parts, accessories, tools, or publications that are initially issued with each item of equipment. Those indicated by an asterisk are to be requisitioned through normal supply channels as required.

g. Illustrations. This column is subdivided into two columns which provide the following information:

(1) *Figure number.* Provides the identifying number of the illustration.

(2) *Item number.* Provides the referenced number for the parts shown in the illustration.

3. Federal Supply Code for Manufacturers

97403----Engineer Research and Development Laboratory.
65083----Westinghouse Electric Corp.

Section II. BASIC ISSUE ITEMS LIST

Source codes				Federal stock No.	Description	Unit of issue	Quantity authorized	Quantity issued with equipment	Illustration	
Materiel	Source	Maintenance	Recoverability						Figure	Item
					GROUP 31—BASIC ISSUE ITEMS, MANUFACTURER INSTALLED					
					3100—BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED					
	X2	O	--	---------	HOLDER ASSEMBLY:, pencil lead (97403) D5045-8. (Repair Parts Manual Group 6703)	--	1	1		
	P	O	--	---------	LAMP, INCANDESCENT (65083) 7W115 (Repair Parts Manual Group 6705)	--	2	2		
12	--	--	--	---------	DEPARTMENT OF THE ARMY OPERATORS, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT, AND DEPOT MAINTENANCE AND REPAIR PARTS LIST TM 5-6675-241-15.					
	X2	O	--	---------	CASE, CARRYING ---------- (Repair Parts Manual Group 1808)	--	1	1		

Source codes				Federal stock No.	Description	Unit of issue	Quantity authorized	Quantity issued with equipment	Illustration	
Materiel	Source	Maintenance	Recoverability						Figure	Item
					GROUP 31—BASIC ISSUE ITEMS, MAUNFACTURER INSTALLED—Continued					
					3100—BASIC ISSUE ITEMS, MAUNFACTURER OR DEPOT INSTALLED Continued					
	X2	O	--	---------	HOLDER ASSEMBLY: pencil lead (97403) D5045-8).	--	1	1		
					(Repair Parts Manual Group 6703)					
	P	O	--	---------	LAMP, INCANDESCENT (65083) 7W115.	--	2	2		
					(Repair Parts Manual Group 6705)					
12	--	--	--	---------	DEPARTMENT OF THE ARMY OPERATORS, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT, AND DEPOT MAINTENANCE AND REPAIR PARTS LIST TM 5-6675-241-15.					

APPENDIX III

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

This appendix contains the explanations of all the maintenance and repair functions authorized the various maintenance levels.

Section II MAC (MAINTENANCE ALLOCATION CHART) designates overall responsibility for the performance of maintenance operations.

Section III (TOOL AND TEST EQUIPMENT REQUIREMENTS) contains a list of the special tools and special test equipment required for each maintenance operation as referenced from the MAC section II column K. This section cross references a particular maintenance operation of the MAC when special tools and equipment are required to perform a specific maintenance task.

Section IV (REMARKS) contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance operation. This section is cross referenced to the MAC section II column L.

2. Maintenance Operations

Maintenance is any action taken to keep material in a serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of material includes the following:

a. Service. Operations required periodically to keep the item in proper operating condition, i.e., to clean, preserve, drain, paint, and replenish fuel, lubricants, hydraulic, and deicing fluids or compressed air supplies.

b. Adjust. Regulate periodically to prevent malfunction. Adjustments will be made commensurate with adjustment procedures and associated equipment specifications.

c. Aline. Adjust two or more components of an electrical or mechanical system so that their functions are properly synchronized or adjusted.

d. Calibrate. Determine, check, or rectify the graduation of an instrument, weapon, or weapons system or components of a weapons system.

e. Inspect. Verify serviceability and detect incipient electrical or mechanical failure by close visual examination.

f. Test. Verify serviceability and detect incipient electrical or mechanical failure by measuring the mechanical or electrical characteristics of the item and comparing those characteristics with authorized standards. Test will be made commensurate with test procedures and with calibrated tools and/or test equipment referenced on the MAC.

g. Replace. Substitute serviceable components, assemblies and subassemblies for unserviceable counter parts or remove and install the same item when required for the performance of other maintenance operations.

h. Repair. Restore to a serviceable condition by replacing unserviceable parts or by any other action required using available tools, equipment, and skills to include welding, grinding, riveting, straightening, adjusting, and facing.

i. Overhaul. Restore an end item to completely serviceable condition as prescribed by

serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspection and repair only as necessary" (IROAN). Maximum use of diagnostic and test equipment is combined with minimum disassembly during overhaul "overhaul" may be assigned to any level of maintenance except organizational, provided the time, tools, equipment, repair parts authorization, and technical skills are available at that level. Normally, overhaul as applied to end items, is limited to depot maintenance level.

j. Rebuild. Restore to a condition comparable to new by disassembling to determine the condition of each component part and reassembly using serviceable, rebuilt, or new assemblies, subassemblies, and parts.

3. Explanation of Columns Section II

a. Functional Group Number. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 750-93-1 Functional Grouping Codes) are listed on the MAC in the appropriate numerical sequence. These indexes normally are set up in accordance with this function and proximity to each other.

b. Component Assembly Nomenclature. This column contains the functional grouping index heading. Subgroups heading, and a brief description of the part starting with the name.

c. Essentiality. The essentiality column reflects whether or not an assembly, or repair part, is combat essential to the tactical use of the end item. The letter E in this column indicates the items are combat essential.

d. Maintenance Operations and Maintenance Levels. This column contains the various maintenance operations A through J, service, adjust, etc.

A symbol indicating the maintenance level placed in the appropriate column in line with an indicated maintenance operation authorized that level to perform the function. The symbol indicates the lowest level of maintenance responsible for performing the function, but does not necessarily indicate repair parts stockage at that level. Higher levels of maintenance are authorized to perform the indicated functions of lower levels. The symbol designation for the various maintenance levels are as follows:

O/C—Operator or crew
O —Organizational
DS—Direct Support
GS—General Support
D —Depot

e. Reference Note. This column is subdivided in two columns. Column K references the tool and test equipment requirements (T and TE) section III of the MAC. Column L references the remarks section IV of the MAC.

4. Explanation of Columns Section III

a. Reference Code. This column consists of a number and a letter separated by a dash. The number references the T and TE requirements column on the MAC.
The letter represents the specific maintenance operation the item is to be used with. The letter is representative of column A through J on the MAC.

b. Maintenance Level. This column shows the lowest level of maintenance authorized to use the special tool or test equipment.

c. Nomenclature. This column lists the name or identification of the tool or test equipment.

d. Tool Number. This column lists the manufacturer's code and part number, or Federal stock number, of tools and test equipment.

5. Explanation of Columns Section IV

a. Reference Code. This column consists of two letters separated by a dash. The first letter references column L, the second letter references a maintenance operation, column A through J on the MAC section II.

b. Remarks. This column lists the remarks and other information pertinent to the operation being performed as indicated on the MAC section II.

Section II. MAINTENANCE ALLOCATION CHART

Functional group No.	Component assembly nomenclature	Essentiality	Maintenance operations: A Service	B Adjust	C Align	D Calibrate	E Inspect	F Test	Maintenance levels: G Replace	H Repair	I Overhaul	J Rebuild	Note reference: K T and TE equip	L Remarks
18	BODY, CAB, HOOD AND HULL													
1803	Carrying Cases:													
	Case, carrying	--	--	--	--	--	--	--	O					
67	PRECISION INSTRUMENTS AND SYSTEMS MECHANICAL ELECTRICAL, ELECTRONIC													
6700	Stereocomparagraph:													
	Stereocomparagraph	--	/C	--	--	--	--	--	O	O				
6702	Optics:													
	Lens assembly	--	--	--	--	--	--	--	O					
	Reflector assembly	--	--	--	--	--	--	--	O	O				
6703	Mechanical, Structural and Precision Parts:													
	Base assembly	--	--	--	--	--	--	--	O	O				
	Support assembly	--	--	--	--	--	--	--	O	O				
	Holder assembly, pencil	--	--	--	--	--	--	--	O					
	Arm assembly, sketching	--	--	--	--	--	--	--	O					
6705	Lamps:													
	Light assembly	--	--	--	--	--	--	--	O					
	Lamps	--	--	--	--	--	--	--	O/C					

Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

Reference code	Maintenance level	Nomenclature	Tool No.
	NO TOOLS OR TEST EQUIPMENT REQUIRED.		

Section IV. REMARKS

Reference code	Remarks
	NO REMARKS REQUIRED.

APPENDIX IV
ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT AND DEPOT MAINTENANCE REPAIR PARTS AND SPECIAL TOOL LISTS

1. General

a. This manual lists repair parts and special tools for organizational, direct and general support, and depot maintenance. It indicates the quantity of repair parts required to be stocked by organizational maintenance as their prescribed load. It indicates the guide quantity factors to be used for initial repair parts stockage by direct and general support, and recommends quantities of repair parts for depot maintenance. Information and data contained herein serve as requisitioning reference material, and as guide to determine stockage quantities of repair parts.

b. Price information for stock-type repair parts may be obtained from applicable Federal Supply Catalogs and/or Supply Management Data and Price List (ML) of the Department of Defense Supply Agencies.

c. Repair parts list are arranged as follows:

(1) Individual parts and major assemblies are listed alphabetically by item name within the functional groups.

(2) Assembly components and subassemblies are indented and listed alphabetically by item name under major assemblies.

d. Allowances are based on 1,000 hours operational per year.

2. Explanation of Repair Parts, Tools Lists, and Prescribed Load Listing (Table 1)

a. Source Codes. This column is subdivided into four columns. The titles and information provided in each column are as follows:

(1) *Materiel.* This space is left blank for identification of agencies assigned supply responsibility for parts, refer to appropriate Federal and Department of Army Supply Catalogs.

(2) *Source.* The selection status and source of supply for each part are indicated by one of the following code symbols:

(*a*) P—applied to high-mortality repair parts which are stocked in or supplied from the supply service depot system and authorized for use at indicated maintenance levels.

(*b*) X1—applied to repair parts which are not procured or stocked, the requirement for which will be supplied by use of next higher assembly or components.

(*c*) X2—applied to repair parts which are not stocked. The indicated maintenance level requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.

(3) *Maintenance.*

(*a*) The lowest maintenance level authorized to manufacture, assemble, and/or install the part is indicated by one of the following code symbols:

O—Organizational Maintenance

(*b*) This column is left blank when components of kits or sets are listed that are not applicable to the item of equipment, or when an item is source coded X1.

(4) *Recoverability.* Repair parts that are recoverable are indicated by one of tion of the part are shown.

R—applied to repair parts and assemblies which are economically repairable at direct and general support maintenance activities and normally are furnished by supply on an exchange basis.

Note. When no code is shown in the recoverability column, the part is considered expendable.

b. Federal Stock Number. The Federal stock number will be shown in this column and will be used for requisitioning purposes.

c. Description.

(1) The item name and a brief descrip- of the part are shown.

(2) A five-digit Federal supply code for manufacturers and/or other supply agencies is shown in parentheses, followed by the manufacturer's part number. This number will be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock number column. *Example:* (08645) 86453.

(3) Repair part quantities included in kits, sets, and assemblies, that differ from the actual quantity used in this specific end item, are listed in parentheses.

Note. When a minimum stockage sufficient to repair one item and/or assembly is authorized, this quantity will be indicated in the Description column with the notation "minimum stockage of ——— is authorized".

d. Unit of Issue. If no abbreviation is shown in this column, the unit of issue is "each".

e. Quantity Incorporated in Unit. The actual number of parts used in the application indicated is shown in this column. A zero (o) is shown when components of kits or sets are listed that are not applicable to this specific end item.

f. 15-Day Organizational Maintenance Allowance. Shown for each repair part is either a quantity or an asterisk allocation which indicates the following:

(1) A guide quantity factor is shown for each repair part authorized to be stocked by organizational maintenance. This quantity is based on past experience with similar items and the latest mortality data for 1,000 hours operation per year. It is the average quantity required to provide one prescribed load for 1–5 and/or 6–10 items of equipment for a 15-day period under average combat conditions.

Note. Combat essential items which must be stocked or on order at organizational maintenance at all times, regardless of demand, will be identified in the allowance column by a quantity in parentheses.

(2) The quantity of repair parts authorized for stockage in accordance with the number of prescribed loads authorized by the major commander are determined by using table 3.

(3) Table 3 is a consolidation of items quantitatively allocated in this manual. Quantities listed are for one prescribed load for a 15-day period. A minimum stockage sufficient to repair one item and/or assembly is authorized (e.g., if 3 belts are required, then 3 belts are allocated as the minimum stockage authorization column.

(4) Units and organizations authorized more than one prescribed load will multiply the quantity listed in the appropriate end item density spread column of 1–5 or 6–10 by the number of prescribed loads.

(5) When more than 10 equipments require support, multiply the quantity listed in the 6–10 column by the number of equipments and the number of authorized prescribed loads, divide by 10, and round to the nearest whole number.

Table 3. Prescribed Load Listing

Federal stock No.	Description	Functional group	Minimum stockage authorization	Unit of issue	15-days organizational maintenance allowances	
					1–5	6–10
	LAMP, INCANDESCENT (65083) 7W115	6705			(1)	(1)
7510–164–8866	LEAD, PENCIL (72803) 2375HB	6703			(1)	(1)
7510–272–9820	LEAD, PENCIL (72803) 2375–3HB	6703			(1)	(1)
7510–233–3628	LEAD, PENCIL (72803) 2375–5HB	6703			(1)	(1)

Example: If the quantity listed in the 6–10 column is 4, the number of equipments is 17, and the number of authorized prescribed loads is 1, the following formula would be used:

$$4 \times 17 \times 1 \div 10 = 6.8$$

The resulting fraction is 0.8; therefore the authorized stockage is 7.

Example: If the quantity listed in the 6–10 column is 4, the number of equipments is 17, and the number of authorized prescribed loads is 3, the following formula would be used:

$$4 \times 17 \times 3 \div 10 = 20.4$$

The resulting fraction is 0.4; therefore the authorized stockage is 20.

Note. An exception is made for those units and organizations required to have on hand, boxed or packaged prescribed load(s) pursuant to a special mission assignment. Such prescribed load(s) will be computed or selected separately from quantities authorized for stockage at permanent station.

(6) Repair parts required to perform organizational maintenance, which are not authorized for stockage are identified by an asterisk, and are to be requisitioned for immediate use only.

(7) Subsequent changes to allowances will be limited as follows:

(*a*) No decrease in the stated quantity of combat essential items is authorized.

(*b*) No change in the range of items is authorized. If exception to the prescribed load listing or revision to allowances is considered necessary, a recommendation should be forwarded to the U.S. Army Mobility Equipment Center (para 6).

(*c*) Decreases in the stated quantity of items other than combat essential items are authorized to a minimum quantity sufficient to repair one item and/or assembly and increases in the stated quantity are authorized for all items when justified by demand and usage experience. Detailed procedures for performing these adjustments are prescribed in AR 735–35.

g. Guide Quantities Per 100 Equipments. Shown for each repair part applicable direct and general support, and/or depot maintenance is either an allowance factor or an asterisk allocation which indicates the following:

(1) A guide quantity factor is shown for each part authorized to be stocked by direct and general support maintenance and supply support activities, and the number of repair parts recommended for depot maintenance. This factor is based on the latest mortality data for 1,000 hours operation per year and is the average quantity required by the various maintenance activites to provide maintenance and supply support for 100 items of equipment for a 15-day period under average combat conditions.

(2) The quantities of repair parts authorized for stockage are determined using the following mathematical formula:

Quantity of equipment to be supported, multiplied by the listed allowance factor, divided by 100.

Fractions derived from the use of the above formula will be rounded to whole numbers as follows: If the result is 1 or more and includes a fraction that is 0.5 or more, the quantity is rounded to the next higher number.

Example: If the number of equipment supported is 30 and the allowance factor for 100 equipments is 5, the following formula would be used:

$$30 \times 5 \div 100 = 1.5$$

The resulting fraction is 0.5; therefore, the stockage is 2. If the result is 1 or more and includes a fraction of less than 0.5, the quantity is rounded to the next lower number. When the computed result is less than 0.5, no quantity is authorized. However, if the item is combat essential, a quantity of 1 is authorized.

Example: If the number of equipment supported is 30 and the allowance factor for 100 equipment is 28, the following formula would be used:

$$30 \times 28 \div 100 = 8.4$$

The resulting fraction is less than 0.5; therefore, the stockage is 8.

(3) In the guide quantity columns for direct and general support maintenance, additional repair parts authorized for use, but not for initial stockage, are listed without a guide quantity factor. These items are identified by an asterisk and may be added to or deleted from stock when recorded demand experience justifies a change in stockage objective.

(4) Parts that may be required for depot maintenance, in addition to those allocated are identified by an asterisk. These parts are to be requisitioned, when required. If not obtainable from reclamation, fabrication, or local procurement.

h. Direct and General Support Maintenance 15-Day Level.

(1) *Direct Support (DS).* This column lists the initial guide quantity allowance factors of repair parts authorized for initial stockage by direct support maintenance for Mobility Command equipment and to provide organizational maintenance repair parts for supported units for a 15-day period. Additional repair parts identified by an asterisk are explained in *g* above. Upon establishment of supply records, recorded demand experience will be used to compute stockage objectives on authorized repair parts. Review of stockage objectives will be performed in the time cycle prescribed by major commanders.

(2) *General Support (GS).* This column lists initial guide quantity allocation factors of repair parts authorized for initial stockage by general support maintenance activities to provide general support maintenance for Mobility Command equipment for a 15-day period. Additional repair parts identified by an asterisk are explained in *g* above. Upon establishment of supply records, recorded demand experience will be used to compute stockage objectives on authorized repair parts. Review of the stockage objectives will be performed in the time cycle prescribed by major commanders.

(3) *Units with TOE capability of performing partial or complete Direct and General Support maintenance for organic Mobility Command equipment.* Units with the TOE capability of performing partial or complete direct and general support maintenance for organic Mobility Command equipment will be authorized to stock direct and/or general support repair

parts only when specific agreements are made between the commander of the designated parts supply activity, normally Direct Support Units (DSU) and using unit. Parts so furnished are in addition to the prescribed load and will be adjusted as demands indicate.

(4) *Units with TOE Mission to provide maintenance for Mobility Command equipment of supported units.* Units organized under TOE's with the assigned mission to provide direct and general support maintenance for Mobility Command equipment of supported units are authorized to stock direct and general support repair parts. These repair parts will be issued from the appropriate parts supply activity (parts depot and/or DSU). Such stockage is in addition to the prescribed load and will be adjusted as demand indicate.

i. Depot Maintenance. This column lists the quantity of repair parts recommended for depot maintenance shops (non-TOE) to provide depot maintenance for 100 equipments. Additional repair parts are allocated by an asterisk, for immediate use only. Explanation of the asterisk allowance is contained in *g* above.

j. Illustrations. This column is subdivided into two columns as follows:

(1) *Figure number.* Indicates the number of the illustration in which the part is shown.

(2) *Item number.* Indicates the reference number used to point out the part in the illustration.

3. Abbreviations

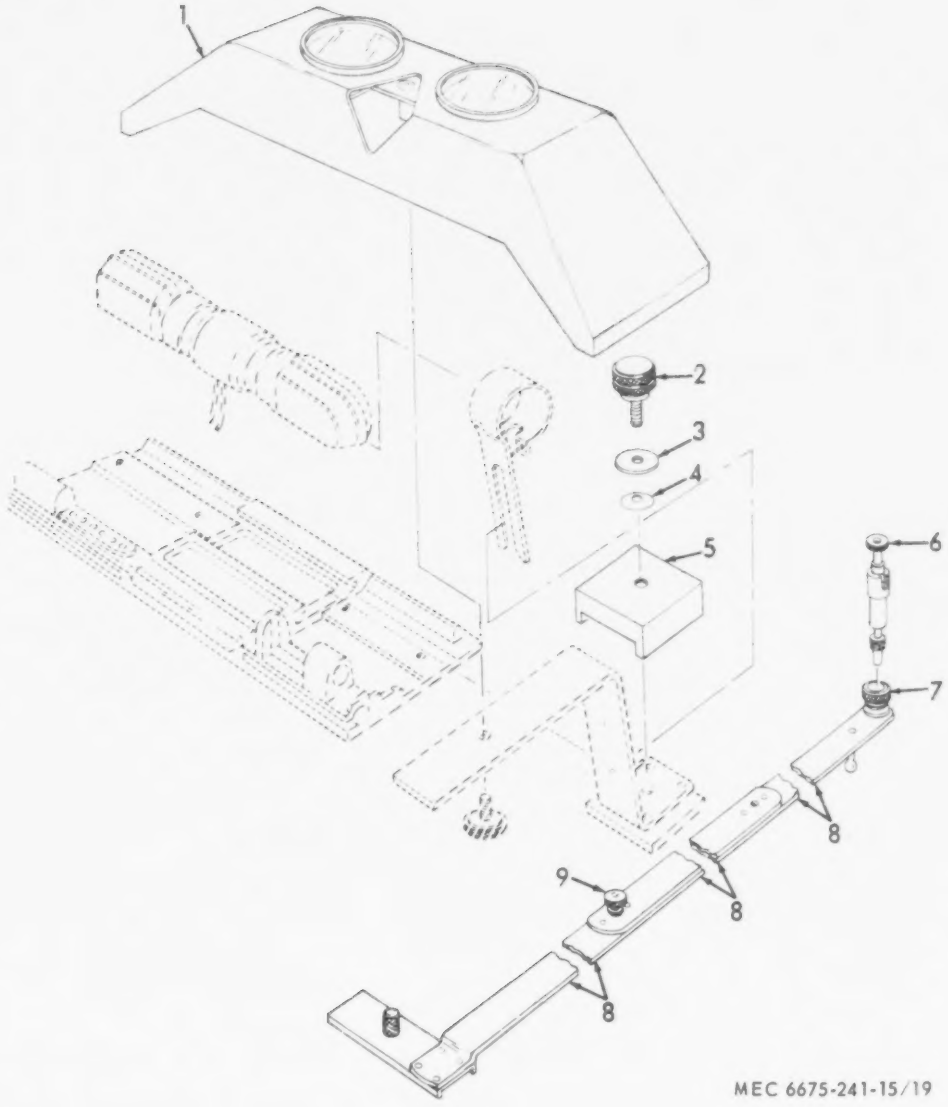
dia	diameter
in	inch (es)
lg	long (length)
lh	left hand
mtg	mounting
rh	right hand
w/	with

4. Federal Supply Code for Manufacturers

17866	Dietzgen Eugene Co.
65083	Westinghouse Electric Corp.
72803	Eagle Pencil Co.
81345	Underwriters Laboratories, Inc.
94973	Gordon Enterprises.

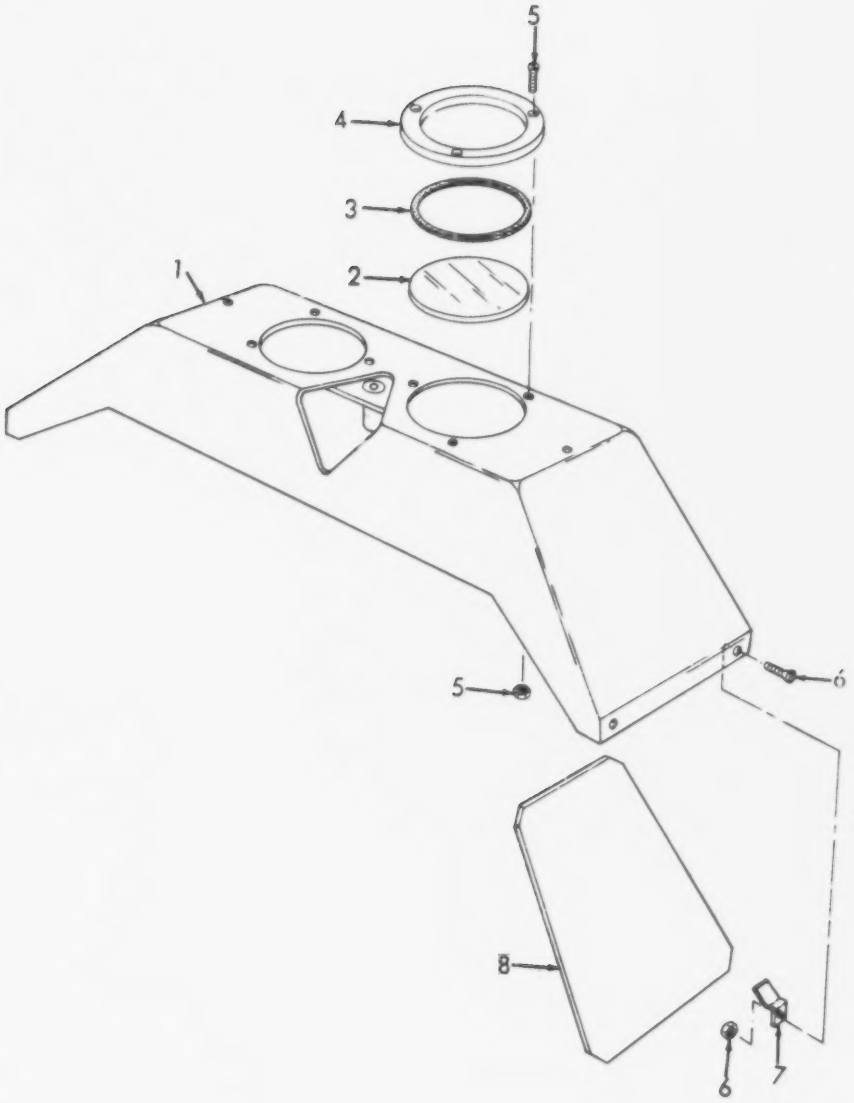
LINE NO.	SOURCE CODES: MATERIEL	SOURCE	MAINT	RECOVERABILITY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJ EQUIPS: 15 DAYS MAINTENANCE: ORGANIZATION 1-5	ORGANIZATION 6-10	DS	GS	DEPOT MAINT 100 EQUIPMENTS	ILLUST: FIGURE NO	ITEM NO
0001						SECTION II - REPAIR PARTS LIST											
0001						GROUP 67 - PRECISION INSTRUMENTS AND SYSTEMS, MECHANICAL ELECTRICAL, ELECTRONIC											
0002						6700 - STEREO COMPARAGRAPH											
0003	X20R					STEREO COMPARAGRAPH	97403	D5045-1		1	*	*	*	*	*	0	0
0004	X20					REFLECTOR ASSEMBLY	97403	D5045-6		1	SEE	GRP	6702				
0005	X20					LENS ASSEMBLY, LEFT HAND	97403	D5045-2-4		1	SEE	GRP	6702				
0006	X20					LENS ASSEMBLY, RIGHT HAND	97403	D5045-2-3		1	SEE	GRP	6702				
0007	X20					LIGHT ASSEMBLY	97403	D5045-2-1		1	SEE	GRP	6705				
0008	X20					ARM ASSEMBLY	97403	D5045-2-2		1	SEE	GRP	6703				
0009	X20					HOLDER ASSEMBLY, PENCIL	97403	D5045-8		1	SEE	GRP	6703				
0010	X20					SUPPORT ASSEMBLY	97403	D5045-3		1	SEE	GRP	6703				
0011	X20					BAR, CLAMP: REFLECTOR TO BASE	97403	D5045-5-16		1	*	*	*	*	*	19	5
0012	X20					SCREW, CLAMP: REFLECTOR TO BASE	97403	D5045-5-17		1	*	*	*	*	*	19	2
0013	X20					WASHER, FLAT: CLAMP SCREW, 3/8 IN. ID, 1 IN. OD, 1/8 IN. THK	97403	D5045-4-10		1	*	*	*	*	*	19	3
0014	X20					WASHER, SPRING: CLAMP SCREW	97403	D5045-4-11		1	*	*	*	*	*	19	4
0015						6702 - OPTICS											
0016	X20					REFLECTOR ASSEMBLY: COMPARAGRAPH	97403	D5045-6		1	*	*	*	*	*	19	1
0017	X20					GASKET: LENS RETAINER	97403	D5045-6-3		2	*	*	*	*	*	20	3
0018	X20					SCREW, LENS RETAINER: W/NUT AND LOCKWASHER, NO. 2-5 THD SIZE, 5/16 IN. LG	97403	D5045-6-8		6	*	*	*	*	*	20	5
0019	X20					RETAINER, LENS: REFLECTOR ASSEMBLY	97403	D5045-6-5		2	*	*	*	*	*	20	4
0020	X20					SCREW, MACHINE: SHIELD MTG, NO. 2-56 THD SIZE, 1/2 IN. LG	97403	D5045-6-7		4	*	*	*	*	*	23	3
0021	X20					MIRROR, REFLECTOR: SHIELD	97403	D5045-6-2		2	*	*	*	*	*	20	8
0022	X20					SHIELD, MIRROR: REFLECTOR	97403	D5045-6-1		1	*	*	*	*	*	20	1
0023	X20					CLAMP, MIRROR: REFLECTOR	97403	D5045-6-6		6	*	*	*	*	*	20	7
0024	X20					SCREW, CLAMP: W/NUT AND LOCKWASHER, NO. 2-56 THD SIZE, 5/16 IN. LG	97403	D5045-6-9		6	*	*	*	*	*	20	6
0025	X20					LENS, UPPER: REFLECTOR ASSEMBLY	97403	D5045-6-4		2	*	*	*	*	*	20	2
0026	X20					LENS ASSEMBLY: BASE, LH	97403	D5045-2-4		1	*	*	*	*	*		
0027	X20					LENS: LH	97403	D5045-3-10		1	*	*	*	*	*	21	12
0028	X20					RING, RETAINER: LENS	97403	D5045-3-9		1	*	*	*	*	*	21	13
0029	X20					RETAINER, LENS: LH	97403	D5045-3-5		1	*	*	*	*	*	21	16
0030	X20					SCREW, SHOULDER: LENS RETAINER CLAMPING	97403	D5045-3-7		1	*	*	*	*	*	21	17
0031	X20	5305-754-4551				SCREW, MACHINE: HINGE MTG, STEEL, NO. 4-40 THD SIZE, 5/16 IN. LG				2	*	*	*	*	*	21	15
0032	X20					HINGE: LENS RETAINER	97403	D5045-3-4		1	*	*	*	*	*	21	6
0033	X20					BALL, HINGE: GUIDE	97403	D5045-3-2		1	*	*	*	*	*	21	3
0034	X20					SPRING, COMPRESSION: HINGE BALL	97403	D5045-3-3		1	*	*	*	*	*	21	2
0035	X20					GUIDE: LENS RETAINER	97403	D5045-10-5		1	*	*	*	*	*	21	1
0036	X20					PIN, STRAIGHT, HEADLESS: HINGE	97403	D5045-9-8		1	*	*	*	*	*	21	5
0037	X20					LENS ASSEMBLY: BASE, RH	97403	D5045-2-3		1	*	*	*	*	*		
0038	X20					SCREW, ADJUSTING: LENS RETAINER	97403	D5045-10-8		1	*	*	*	*	*	21	11
0039	X20					NUT, ADJUSTING: LENS RETAINER, KNURLED	97403	D5045-10-6		1	*	*	*	*	*	21	10
0040	X20					RETAINER, LENS: RH	97403	D5045-10-1		1	*	*	*	*	*	21	9
0041	X1					GUIDE, ADJUSTING: LENS, RH	97403	D5045-10-3		1						21	8
0042	X20	5305-754-4551				SCREW, MACHINE: HINGE MTG, STEEL, NO. 4-40 THD SIZE, 5/16 IN. LG				2	*	*	*	*	*	21	15
0043	X20					PIN, STRAIGHT, HEADLESS: HINGE MTG	97403	D5045-9-8		1	*	*	*	*	*	21	5
0044	X20					HINGE: LENS RETAINER	97403	D5045-9-4		1	*	*	*	*	*	21	6
0045	X20					GUIDE: LENS RETAINER	97403	D5045-10-5		1	*	*	*	*	*	21	1
0046	X1					HINGE: ADJUSTING GUIDE	97403	D5045-10-2		1						21	7
0047	X1					GUIDE, ADJUSTING: LENS, RH	97403	D5045-10-4		1						21	14
0048	X20					LENS: RH	97403	D5045-9-10		1	*	*	*	*	*	21	12
0049	X20					RING, RETAINER: LENS	97403	D5045-9-9		1	*	*	*	*	*	21	13
0050	X20					SCREW, SPECIAL: LENS RETAINER GUIDE	97403	D5045-10-7		1	*	*	*	*	*	21	4
0051						6703 - MECHANICAL, STRUCTURAL, AND PRECISION PARTS											
0052	X20					BASE ASSEMBLY	97403	D5045-7		1	*	*	*	*	*		
0053	X20					PLATE, CHUCKING: DRAFTING, W/SCREWS	17666	4639SC		2	*	*	*	*	*	22	4
0054	X20					SCREW, RH	17666	4639RS		2	*	*	*	*	*		
0055	X20					SCREW, FH	17666	4639FH		2	*	*	*	*	*		
0056	X20					SCALE: BASE	97403	D5045-2-5		1	*	*	*	*	*	22	7
0057	X1					BASE: COMPARAGRAPH	97403	D5045-7		1						22	6
0058	X20					PIN, LOCATING: LENS ASSEMBLY, LH	97403	D5045-9-6		1	*	*	*	*	*	22	5
0059	X20					SPRING, COMPRESSION: LENS ASSEMBLY RETURN, RH	97403	D5045-10-9		1	*	*	*	*	*	22	2
0060	X20					SHIELD: MICROMETER	97403	D5045-5-20		1	*	*	*	*	*	22	3

LINE NO.	SOURCE CODES: MATERIEL	SOURCE	MAINT	RECOVERABILITY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJ EQUIPS: 15 DAYS MAINTENANCE: ORGANIZATION 1-5	ORGANIZATION 6-10	DS	GS	DEPOT MAINT	ILLUST: FIGURE NO.	ILLUST: ITEM NO.
											100 EQUIPMENTS						
0061	X20					MICROMETER: LENS ADJUSTING	94973	121GC173		1	*	*	*	*	*	22	1
0062	X20					SCREW: SCALE MTG	97403	D5045-2-6		3	*	*	*	*	*	22	8
0063	X20					SCREW: SHIELD MTG, No. 2-56 THD SIZE, 1/4 IN. LG											
0064	X20					SUPPORT ASSEMBLY: MIRROR	97403	D5045-5-21		3	*	*	*	*	*	2	9
0065	X1					BAR, SUPPORT	97403	D5045-3		1	*	*	*	*	*		
0066	X20					MIRROR, REFLECTING: HINGE, UPPER	97403	D5045-3-2		1							
0067	X20					MOUNT, HINGE MIRROR	97403	D5045-3-3		2	*	*	*	*	*	23	11
0068	X1					FRAME: MIRROR SUPPORT	97403	D5045-3-4		2	*	*	*	*	*	23	2
0069	X20					REST, MIRROR: ADJUSTING	97403	D5045-3-1		1						23	7
0070	X20					SCREW, MIRROR ADJUSTING: REST KNURLED HEAD	97403	D5045-4-9		1	*	*	*	*	*	23	8
0071	X20					SCREW, ADJUSTING: MIRROR REST	97403	D5045-4-6		1	*	*	*	*	*	23	4
0072	X20					SPRING, EXTENSION: MIRROR ADJUSTING	97403	D5045-4-8		1	*	*	*	*	*	23	10
0073	X20					GASKET: MIRROR, CORK	97403	D5045-5-18		2	*	*	*	*	*	23	5
0074	X1					BAR, SLIDE: SUPPORT	97403	D5045-3-5		2	*	*	*	*	*	23	9
0075	X1					RIVET: SUPPORT BAR	97403	D5045-5-14		1						23	1
0076	X20		5305-208-5127			SCREW, MACHINE: SUPPORT BAR MTG, FILLISTER HEAD, No. 2-56 THD SIZE, 1/2 IN. LG	97403	D5045-5-19		4						23	11
0077	X20					WASHER, FLAT: MIRROR ADJUSTING SCREW				4	*	*	*	*	*	23	12
0078	X1					PIN, GUIDE: MIRROR REST	97403	D5045-4-12		1	*	*	*	*	*	23	6
0079	X20					WASHER, FLAT: MIRROR ADJUSTING SCREW STOP	97403	D5045-4-7		1							
0080	X20					ARM ASSEMBLY, SKETCHING	97403	D5045-5-13		1	*	*	*	*	*	23	6
0081	X20					ARM, SKETCHING	97403	D5045-2-2		1	*	*	*	*	*	19	8
0082	X20					SCREW, SPECIAL: ARM AND EXTENSION ATTACHING	97403	D5045-11-1		1	*	*	*	*	*		
0083	X1					RIVET: EXTENSION LOCATING	9740_	5045-11-8		2	*	*	*	*	*	19	9
0084	X1					POST: ARM GUIDE	97403	D5045-11-7		4							
0085	X20					CHUCK: PENCIL HOLDER	97403	D5045-11-6		1							
0086	X20					NUT, KNURLED: PENCIL HOLDER CHUCK CLAMPING	97403	D5045-11-5		1	*	*	*	*	*	19	7
0087	X1					PLATE, ANCHOR: SKETCHING ARM	97403	D5045-11-4		1	*	*	*	*	*		
0088	X20					ARM: PENCIL HOLDER	97403	D5045-11-10		1							
0089	X20					EXTENSION, ARM: SKETCHING ARM	97403	D5045-11-3		1	*	*	*	*	*		
0090	X1					KNOB: ANCHOR PLATE	97403	D5045-11-2		1	*	*	*	*	*		
0091	X1					RIVET: ARM TO ANCHOR PLATE ATTACHING	97403	D5045-11-9		1							
0092	X20					HOLDER ASSEMBLY: PENCIL LEAD	97403	D5045-11-11		4							
0093	X1					TUBE, RETAINER: PENCIL LEAD	97403	D5045-8		3	*	*	*	*	*	19	6
0094	X1					BUSHING: PENCIL HOLDER SLEEVE	97403	D5045-8-1		1							
0095	X1					NUT, KNURLED: LEAD CLAMPING	97403	D5045-8-2		1							
0096	X1					FERRULE: LEAD RETAINER TUBE	97403	D5045-8-3		1							
0097	X1					KNOB, KNURLED: RETAINER TUBE	97403	D5045-8-4		1							
0098	X1					SPRING, COMPRESSION: RETAINER, LEAD TUBE	97403	D5045-8-5		1							
0099	X1					SPRING, COMPRESSION: LEAD TUBE	97403	D5045-8-6		1							
0100	X1					RETAINER: LEAD TUBE	97403	D5045-8-7		1							
0101	X1					SCREW: TUBE RETAINER GUIDE	97403	D5045-8-8		1							
0102	X1					RING, SNAP: TUBE SPRING RETAINING	97403	D5045-8-9		1							
0103	X1					SLEEVE, PENCIL HOLDER	97403	D5045-8-10		1							
0104	P 0		7510-164-8866			LEAD, PENCIL: DRAWING, BLACK	97403	D5045-8-11		1							
0105	P 0		7510-272-9820			LEAD, PENCIL: DRAWING, BLACK	72803	2375HB	BX	1	1)	1)	6	*	12		
0106	P 0		7510-233-3628			LEAD, PENCIL: DRAWING, BLACK	72802	2375-3H	BX	1	1)	1)	6	*	12		
0107						6705 - FUSES AND LAMPS	72803	2375-5H	BX	1	1)	1)	6	*	12		
0108	X20					LIGHT, ASSEMBLY: COMPARAGRAPH	97403	D5045-2-1		1	*	*	*	*	*	24	2
0109	X20					BRACKET: LAMP HOLDER	97403	D5045-4-13		1	*	*	*	*	*	24	3
0110	X20					SCREW, MACHINE: BRACKET MTG, W/NUT, No. 2-56 THD SIZE, 1/2 IN. LG	97403	D5045-4-14		2	*	*	*	*	*		
0111	X20					CORD, ELECTRICAL: LIGHT ASSEMBLY	81349	AWG36		1	*	*	*	*	*	24	4
0112	P 0					LAMP, INCANDESCENT	65083	7W115		1	1)	1)	6	*	10	24	1



1 Reflector assembly
2 Screw
3 Washer
4 Washer
5 Bar
6 Holder assembly
7 Chuck
8 Arm assembly
9 Screw
10 Light assembly

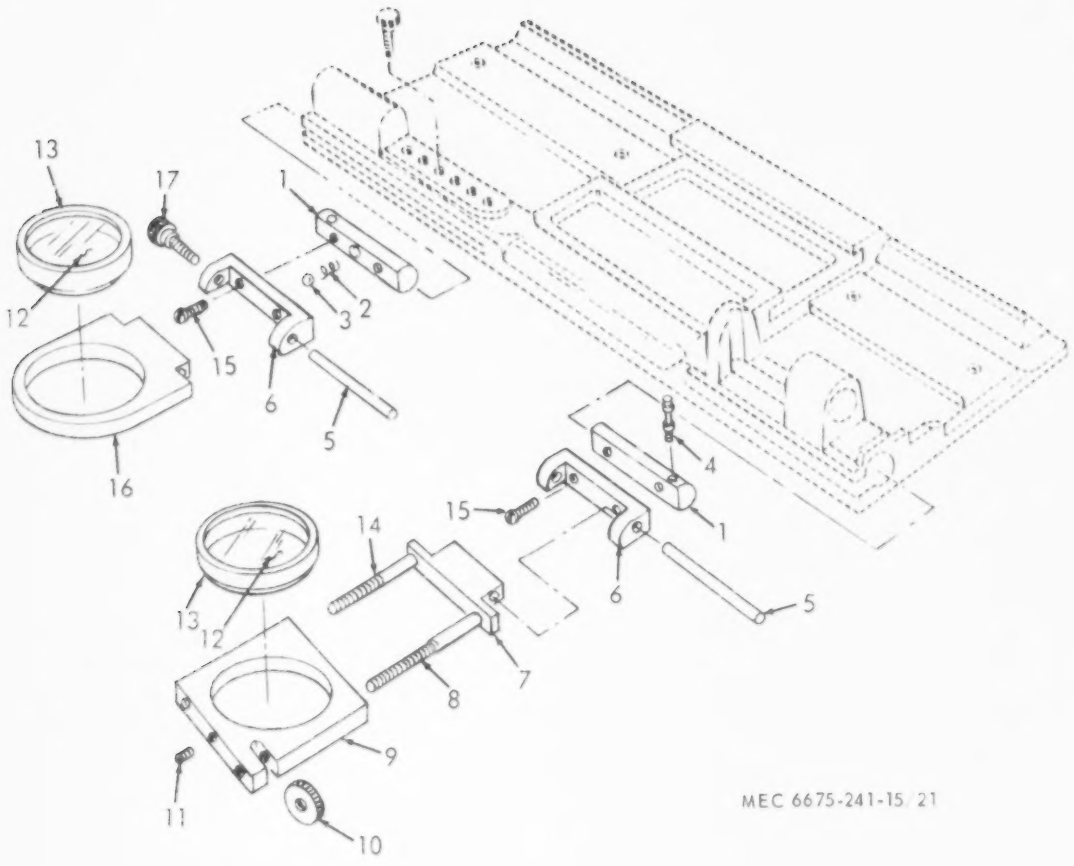
Figure 19. Stereocomparagraph.



MEC 6675-241-15/20

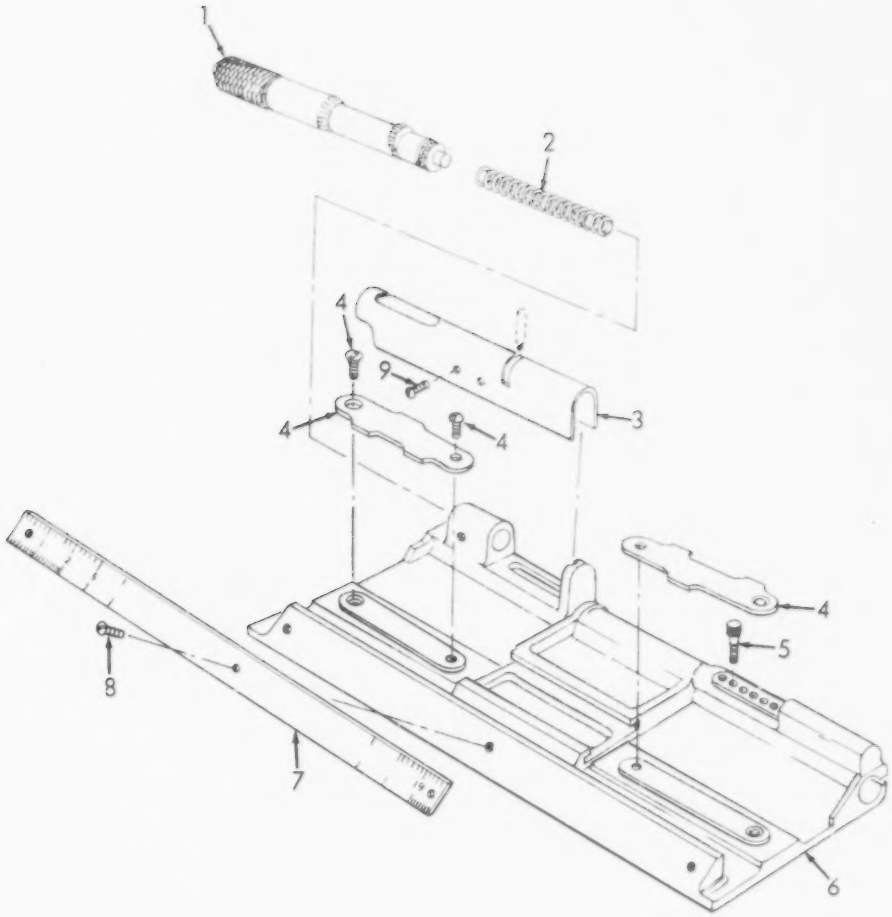
1 Shield
2 Lens
3 Gasket
4 Retainer
5 Screw, w/nut
6 Screw, w/nut
7 Clamp
8 Mirror

Figure 20. Reflector assembly and related parts.



1	Guide	7	Hinge	13	Ring
2	Spring	8	Guide	14	Guide
3	Ball	9	Retainer	15	Screw
4	Screw	10	Nut	16	Retainer
5	Pin	11	Screw	17	Screw
6	Hinge	12	Lens		

Figure 21. Lens assemblies, lh and rh.



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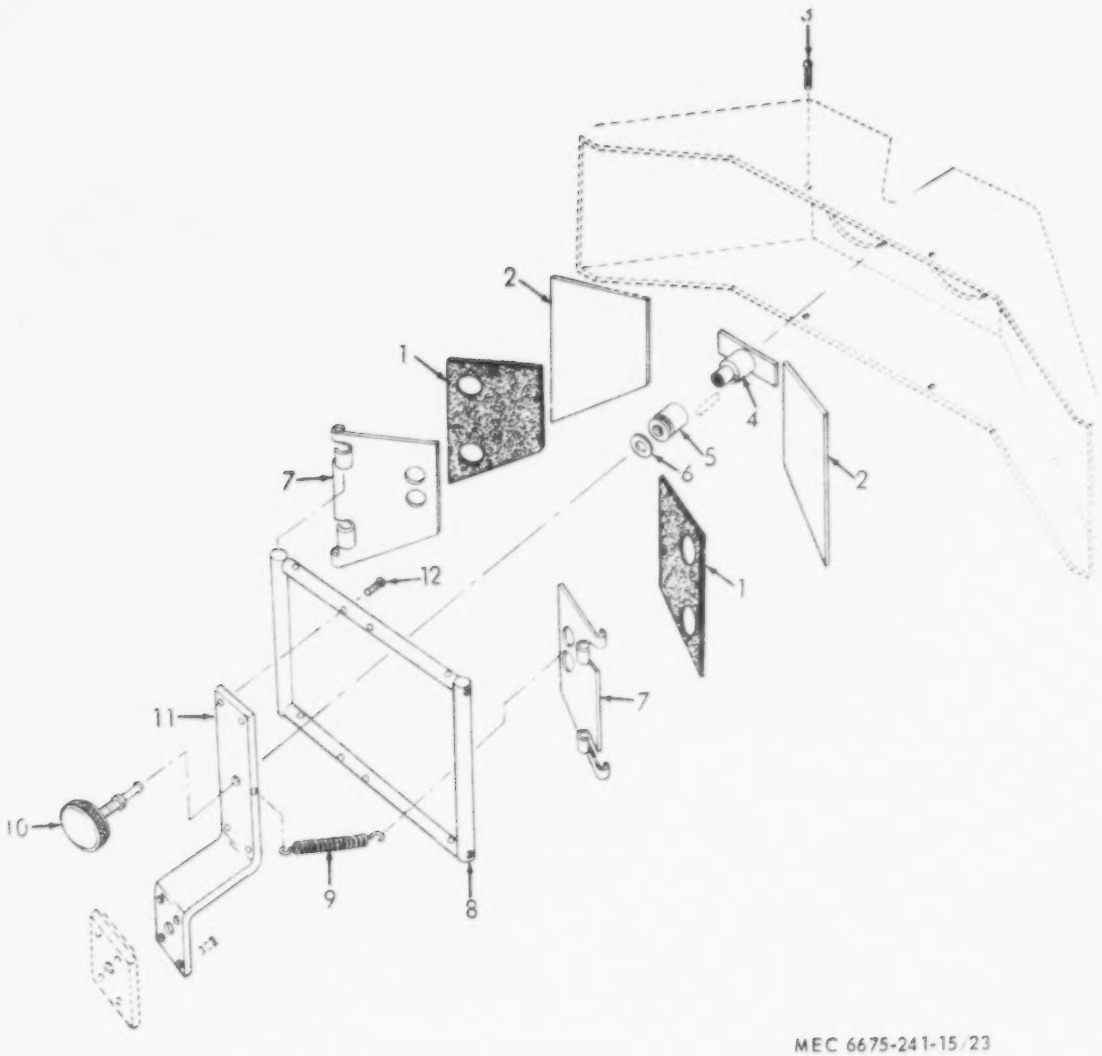
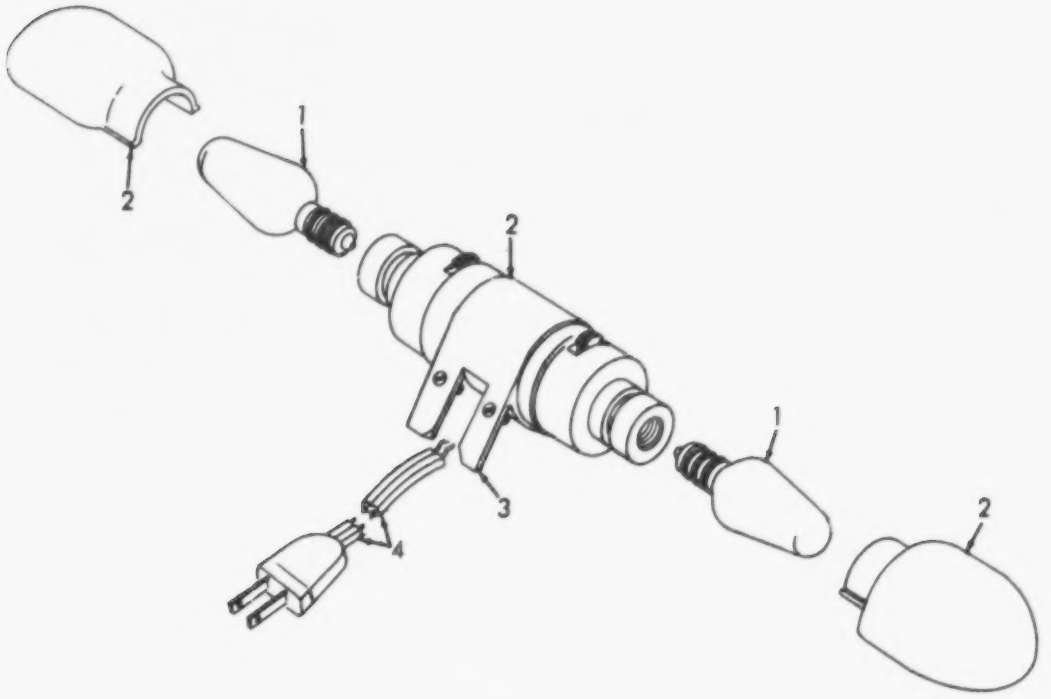
1 Michrometer
2 Spring
3 Shield
4 Plate, w/screws
5 Pin
6 Base
7 Scale
8 Screw
9 Screw

Figure 22. Base assembly.



1	Gasket	5	Screw	9	Spring
2	Mirror	6	Washer	10	Screw
3	Screw	7	Mount	11	Bar
4	Rest	8	Frame	12	Screw

Figure 23. Support assembly.



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1 Lamp
2 Holder
3 Bracket
4 Cord

Figure 24. Light assembly.

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USAR: Same as active Army except allowance is one copy to each unit.

For explanation of abbreviations used, see AR 320-50.

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